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EXCELSIOR;

HELPS TO PROGRESS

IN

RELIGION, SCIENCE, AND LITERATURE,

"The shades of night were falling fast,
As through an Alpine village passed
A youth, who bore, 'mid snow and ice,
A banner with the strange device,
Excelsior!"

LONGFELLOW,

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VERY gratefully do the projectors of this series acknowledge the kindness with which it has been received; and, through the assistance promised by friends eminent in literature and science, they confidently hope that future volumes may win a still larger share of public favour.

At the end of the third year, when the work is completed, it is intended to give a classified index of the subjects discussed, together with the names of the principal contributors.

In the meanwhile, it may be right to mention, for ıe information of those whom it concerns, that, although ›me of the articles are written by foreigners, they are ·l copyright, and have all been prepared expressly for ıe pages of "Excelsior."

June 1, 1854.

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THE GREAT WHITE THRONE.

THERE are red rays as well as blue and yellow. In the sun they are blended together, and their union gives the limpid daylight; but by transmitting through a prism the brightest beam, you can sever it into bars of many tints, all, however, ultimately resolved into ruby, gold, and sapphire. And conversely, you may take these parted beams and reunite them, and their commingling lustre gives you again the white transparent sunshine.

TO Moses, the first of inspired penmen, the Most High revealed His Name, "The Lord God, merciful and gracious, long-suffering, and abundant in goodness and truth, keeping mercy for thousands, forgiving iniquity and transgression and sin, and that will by no means clear the guilty, visiting the iniquity of the fathers upon the children." To John, who fifteen centuries afterwards wrote the closing line of Scripture, the Most High announced His Name in a single word, and ever since it has been the Christian's joy to know that "GOD IS LOVE."

With many, however, there is still much confusion or misunderstanding. Say some, If God is Love, then I may go on in sin: I may do as I please, and still hope in His mercy. And a class very different—one which draws no encouragement to sin from God's abounding grace—is apt to be distressed by the severity with which sin is punished, and by the fearful amount of suffering which in consequence prevails. They not only stand in awe of God's judgments, but they find it difficult to reconcile these judgments with His boundless benevolence.

And yet, if we do not greatly err, the revelation of

Horeb is identical with the revelation of Patmos or Ephesus; and the graciousness, the truth, and the justice, which were proclaimed to the lawgiver, are not only consistent with the "love" announced by the evangelist, but they form the ingredients of which that love is composed. Through the murky medium of guilt nothing may be able to penetrate except the red ray of retributive justice; and, diffracted in the prism of our human thought and speech, we may be constrained to distinguish one perfection from another; but as they exist in the Godhead these attributes are a glorious unity. The wisdom is the forethought of goodness, and the retributions are the justice of One who is loving. But whether split into the spectrum of Sinai, or re-collected and combined in the focus of the gospel, these various perfections are the sunshine of the universe, and are all lost in the one Infinite Excellence of the Light Inaccessible. "God is Love," says St. John. This loving God says of Himself to Moses, that He is true, and merciful, and righteous.

Fixing our regard on God's kindness, but remembering at the same time that He is wise and righteous withal, let us suppose that moral evil has appeared in some province of His dominions. The plague has broken out. There is an individual or a family in revolt. The Father of that individual or family has always felt the fondest affection for it, and has lavished on it ceaseless favours, and even now fatherliness and affection would fain forgive. But can it be? He is the Father of other families also. Is it kind to these others to connive at this? Is it kind to those who still are happy, and happy only because they still are holy, —is it kind to them to make no distinction in the treatment of obedience and transgression? Is it kind to the unfallen to bestow on the fallen the same blessings as before? Is it *kind to* the uncontaminated to allow the infected and disordered *to range* amongst them unmarked and unrestrained?

In a Father at once wise and almighty, would not kindness itself necessitate in such a case the repression of feelings merely fatherly, and would it not constrain the exercise of judicial functions—functions which are penal to one because paternal to all the rest,—severe on sin because tenderly solicitous for the welfare of the universe?

In this view of it, "retributive, or rather vindictive, justice, arises from a competition between the objects of benevolence. Even when it inflicts suffering, it is manifestly the same as goodness; and, in fact, is nothing else but the preference of a greater to a lesser good,—a regard to the general welfare, requiring the sacrifice of a welfare which is limited [and which has already criminally sacrificed itself]. The justice of a public character is goodness regulated by the decisions of wisdom. God is infinitely good and infinitely wise, and therefore essentially and at all times just. His justice even, severe as is its aspect, springs from that view of His nature which is given in the glorious definition, 'God is Love.'"*

Should any of our readers still find a difficulty in reconciling the retributive justice and the benevolence of the Most High, it is probably from overlooking the distinction between true kindness and a promiscuous tenderness; or from confounding moral disapprobation and judicial displeasure with personal vindictiveness.

There is a certain indiscriminate tenderness which, however indulgently we may view it, can scarcely be called a virtue. It passes by and it sees in the House of Correction a prisoner. True, he is a robber. They were his own crimes which brought him there. But what of that? Is it not sad that he should be shut up in that blank and dreary cell whilst there is warm summer in the world? and perhaps the poor wretch has a wife and children whom he has not

* *Gilbert on the* Atonement, p. 137.

seen for months. And so the soft-hearted passenger turns the key, and lets this gaol-bird range at liberty. But now that it is night, what crash was that of the parlour casement? What muffled step is this upon the stair? Who is it that enters the chamber with blackened face and upraised bludgeon? Oh! the ruthless miscreant to dash out the life of the startled householder, and next moment to wrench open his repositories, and rob his orphans of their all! But alas! misjudging householder, you brought the mischief on your own pate; and well was it that it was into your own dwelling, and not into an undeserving neighbour's, that the desperado stumbled. You did a wrong. It was painful to your feelings to see the captive pining. So would it have been to any of us; but because it was right and requisite that he should be kept in durance we would have borne the pain of pity. For the sake of others, if not his own, we would have denied the promptings of compassion; and though to feeling it would have been a luxury to let him loose, as long as love to our virtuous neighbour barred the door we would not allow false pity to force it open. There is a wide distinction between "the benevolence which in a moral system seeks the greatest sum of happiness, and which benevolence in God is really boundless, and the indiscriminate propensity to make every individual creature happy." And till once it can be shown that the comfort of criminals is more important than the welfare of the universe, it will be impossible to show how the punishment of sin is incompatible with the Divine benevolence.

For that is the other distinction which we asked you to make; namely, the difference betwixt judicial displeasure and personal vindictiveness. The latter is an emotion from which "the blessed and only Potentate" is sublimely *exempted,* no less by the perfection of His nature than by *the unapproachable* height of His position. The most angry

assailant cannot endanger His throne, or darken His glory, or abridge for a moment His blessedness; and in all the indignation and wrath against sin which the Scriptures ascribe to Him, we may be very sure that there is not one trace of personal enmity,—not the least tincture of that acrimony or personal hostility which darkens human vengeance.

What is there then? Doubtless, towards the sin there is enmity. Infinite Goodness and moral evil are the intensest antipathy. But towards the sinner what is God's feeling? What is the feeling of a right-minded judge to some atrocious culprit at his bar? "You are a bad man. You never hurt me, and me you never can hurt. But your offence is hateful. My sense of righteousness is outraged by your crime, and, as a tribute to the eternal laws of right and truth, which you have wilfully transgressed, and as a warning to others, you must be severely punished." And the more virtuous the tribunal is, the more intense will be the detestation with which the crime is viewed. And yet, consistently with it all, may be a feeling of unfeigned compassion,—compassion in thinking of the dreary years of penal slavery to which the transgressor has brought himself, and a compassion deeper still in thinking of his wickedness. Alas! that you should be so bad! Alas! that with your fine powers and brilliant outset you should have at last besotted yourself into such coarse brutality, and in tastes so depraved, and in a conscience so fiend-freighted, that you should have provided such fearful company for all your future! And so with the Judge Supreme. "Fury is not in me. As I live, saith the Lord, I have no pleasure in the death of him that dieth." And yet compatibly with all this absence of rancour and remoteness from personal acerbity, so strong is the Divine abhorrence of sin, and so inevitably *is a holy indignation called* forth by transgression, that we

read how "the wrath of God is revealed from heaven against all unrighteousness of men;" that "vengeance belongeth unto God, and He will repay;" that "a day of wrath" is coming which will "reveal His righteous judgment," and when "the wicked shall go away into everlasting punishment." And consistently with all this again, such a pervasion of pity is there,—such a lingering tenderness, and such a tempering of judgment with mercy,—that the clemency of the Judge is to many a presumption of impunity—a reason for delaying repentance, and an encouragement to go on in their trespass.

What abundantly proves that in the Most High there are no personal resentments is the fact, that if the ends of justice can be otherwise answered, He is so willing to pardon the actual transgressor. You know that where you have anything like a personal grudge,—an individual hostility,—it is no satisfaction to you if a third party steps forward, and says, "Take me; I'll pay the penalty." No, no; you must have the man himself. The author of your suffering must suffer in return. But with the official administrator of law it is entirely different. He has no personal resentment to gratify,—no grudge to expiate, and if the majesty of the law can only be vindicated and the interests of the commonwealth secured, he has no *animus* against the individual; the actual offender may go free. And in the case before us, the absence of all enmity,—nay, so to speak, an under-current of the truest tenderness, is touchingly exhibited:—for when a third party does intervene, his interposition is joyfully accepted. Far from gratifying personal antipathies,—far from appeasing vengeful emotion in the extermination or anguish of the transgressor, so entirely judicial is the character which the Most High sustains in condemning and punishing sin,—so purely are His the acts *of a public personage*, the official guardian and administrator

of law,—that it is a joy to all the loving-kindness of His personal nature when He can discharge the convicted criminal and meet withal the claims of righteousness,—when He can be at once the "just God and a Saviour." And if it is asked, How great is His compassion? What is the extent of His mercy? the answer will be seen in the Cross of Christ: the measure of love Divine must be sought in the Sacrifice of Calvary.

We see darkly, and from not distinguishing the things that differ we often fail to harmonise the things that agree. But of all the lenses which collect and combine Truth's scattered rays, the best is a devout and adoring mind. Such a mind was that of the apostle John. In his first epistle he tells us, "God is Love;" but in his gospel he says, "He that believeth not the Son shall not see life: but the wrath of God abideth on him." And in like manner his Apocalypse, full of plagues and vials and woes, concludes with a glorious vision of sovereign rectitude: "I saw a GREAT WHITE THRONE, and Him that sat on it, from whose face the earth and the heaven fled away. And I saw the dead, small and great, stand before God. And the books were opened, . . . and the dead were judged out of those things which were written in the books, according to their works." Some have doubted whether there were any throne at all. They have hardly ever felt responsibility. They have sometimes been reminded of their amenableness to human superiors,—to an earthly employer, or their country's rulers; but they have seldom felt "God's Throne is in heaven, and His kingdom ruleth over *me*. God is my king. Lord, what wouldst thou have me to do?" But now that Throne is made palpable, and as it comes forth from the viewless, and, like phantoms before the great Reality, heaven and earth vanish from the face of its glorious Occupant, and leave *God and the sinner alone* in the universe, every relation is

superseded in felt subjection to the one all-claiming Sovereign. And though controversies were often raised as to the extent of His jurisdiction, — some limiting His providence, and others limiting His power, — these controversies all are ended in this great unveiling, when the open books declare how minute is His inspection; and when the retreating earth does homage to His majesty. And although aspersions were often cast upon that government, — although many have charged God as a hard task-master, a capricious governor, a severe avenger, — now that judgment comes forth to victory, how false and unfounded do these charges appear! The Great Throne is "white." Dark clouds may have veiled it. From time to time, curtains of lightning draped it, or the emerald rainbow arched it. But the Throne itself is white. From that pavilion of "justice and judgment," where through the long cycle of created existence no spot has ever stained it, — all unlike the Throne which scoffers have alleged, neither crimsoned by cruelty, nor tarnished by connivance, nor dimmed by decay, — it now issues to the view of Adam's assembled race as bright and pure as when around its awful elevation hovering seraphs were heard long since proclaiming, "Holy, holy, holy, is the Lord of Hosts." And when this great assize is ended; when every man has been judged according to the books which contain a true record of his works as well as the rules of eternal equity; when the ungodly have been righteously condemned, and believers in Jesus have been as righteously acquitted; that great white Throne shall soar again to its heaven of heavens with added lustre, and shall continue through the countless ages the source of equal laws and the seat of universal government,—the focus of all the hearts which worship, and the attracting centre of that new heavens and new earth wherein dwelleth RIGHTEOUSNESS.

THE THREE WAKINGS.

Among the ancient Laplanders magic was an hereditary art. There were, however, some magicians of a higher character, to whom, in three supernatural sicknesses, or trances, one in childhood, one in youth, and one in manhood, the spirits themselves taught the secrets of the invisible world. These were honoured by the whole nation as seers. — *Mone. Geschichte des Heidenthums.*

ARGUMENT.

The poet-child plays on the margin of the river of life. There the First Trance overpowers him. He awakens from it to the wonderful beauty of the universe. The magic boat bears him away from the broad stream of life to the regions of fancy. There the Second Trance overshadows him. In it he is aroused to the sense of duty and the necessity of work. He girds himself for the strife. In the flush of the triumph which succeeds it, he is overcome by the Third Trance. In it are revealed to him the grace of God, redemption, and the free service of love.

I.

BESIDE the ancient river
The infant poet played,
The grave old rocks above him
Laughed at the mirth he made.

The boat that bore him thither
Lay idle on the shore,
His pearly boat that fast could float
Without or sail or oar.

The fresh young leaves on the hoar old trees
Quivered and fluttered in glee,
And the merry rills from the mighty hills
Shouted as loud as he.

The birds poured joyous welcomes,
For they deemed him one of them;
And the snowdrop laughed in her quiet joy,
Till she shook on her delicate stem.

Broad is that ancient river,
And its depths no sailor knows;
It comes from a place no foot can trace
'Mid the clouds and the ancient snows;

And on its breast is bounding
Many a gallant bark;—
(Do they know that at last o'er a chasm vast
It leaps into the dark?)

But to the child its waters
Were his playmates glad and sweet,
Chasing each other merrily
To bathe his snowy feet;

The starry hosts above him
Were the flowers of the sky,
Too high, perhaps, to gather,
But too beautiful to die;

The world with all its wonders,
Its heavens and its sea,
Was his play-room, full of playmates,
Each one as glad as he.

But as he laughed and gambolled
Strange languor o'er him stole;
His eyes grew dim, and faint each limb,
And dark the sunny soul,

Till the green earth in pity
  Folded him to her breast,
And birds and waves and breezes
  Lulled him to quiet rest.

II.

Sweet Spring the earth was treading
  When he broke that magic trance,
Rose from the ground, and gazed around
  With a new and rapturous glance.

Had the bright earth and heavens
  Expanded as he slept,
That such a tide of light and joy
  Around his senses swept?

Not a leaf nor a wing could quiver—
  Not a breeze the waters moved,
But it thrilled through sense and spirit,
  Like the voice of one beloved.

The sun in his robes of glory,
  From his depths of light on high,
Each lowly flower from its dewy bower
  Beamed like a loving eye.

He sate at the feet of Nature
  In love and wonder meek;
Had he then learned to listen,
  Or had she learned to speak?

The world was a royal palace,
And no stranger guest was he;
As the silvery fish in the silvery brooks
Leaps in its wanton glee,—

As the lark in the air and sunshine
When the early mists are curled,—
His spirit bathed and revelled
In the beauty of the world.

He sought not his joy to utter,
He was content to *see;*
It was enough to listen—
It was enough to *be!*

He had rejoiced for ever
In this Eden to abide,
But the pearly boat began to float
Languidly down the tide.

He left the ancient river
Where the great navies lay,
And glided up a quiet stream
From the din and strife away.

The waves its prow disparted
Made music as it went,
Like lyres and lutes and silvery flutes,
In sweet confusion blent;

Till they came through a rocky portal
Roofed with many a gem,
(But one of the countless number
Had graced a diadem.)

Into a world of wonders,
  Where reigned nor sun nor moon,
But a magic light as still as night,
  And warm as the softest noon.

Onwards and onwards gliding
  By those shores of wondrous things,
'Mid the murmur of dreamy voices,
  And the waving of viewless wings;

Beneath Aladdin's palace,
  Where the gems lay thick as flowers,
And the languid day trickled away
  Like the fountain 'midst leafy bowers;

Amidst the tangled woodland,
  Where in the chequered glade,
With wild and tuneful laughter
  The fairy people played;

Beneath the cliffs he glided,
  And the unclouded sky,
Where the stately Attic temple
  Reared its white shafts on high;

And kingly men and women,
  The brave and wise and strong,
Earth's loftiest and sweetest souls,
  Lived and made life a song;

Beneath the Northern forest,
  Where the thunderbolts were made,
And spirits and gods and mighty men
  Met in the mystic shade;

And the hero and the poet
  Smiled brotherly on him,
But again that languid slumber
  Crept over soul and limb.

The weight of a first sorrow
  Lay heavy on his breath,
And the fair world was shadowed o'er
  With a darkness as of death.

And he longed for familiar voices
  And the light of the common day,
And the common air on his fevered brow,
  And the fields of his childish play.

Till by a lonely islet
  The vessel moored at last,
And he stept on the bank, and languidly sank
  'Mid the graves of the great that were past.

* * * * *

III.

He woke. The world of faëry,
  With its soft and gorgeous light,
Was dissolved and gone, and he lay alone,
  Beneath the solemn night;

Beneath the hosts of heaven
  In their grand reality;
'Mid the shadowy glooms of many tombs,
  On the shores of a heaving sea.

A suit of polished armour
Lay glittering by his side;
Breastplate and casque and girdle,
And a sword of temper tried.

Furrows of inward conflict
On his brow were dented deep;
And he woke to a steadfast purpose
From the night of that awful sleep;

For a strange and solemn Visitant
Beside his couch had been,
Clad in the old prophetic garb,
And stern with the prophet's mien.

"What dost thou here?" she murmured,
"What *is* outshines what *seems;*
Earth has no room for idlers;
Life has no time for dreams.

"Seest thou nought of suffering?
Knowest thou nought of sin?
Hast thou not heard the groans without,
Or felt the sting within?

"Thy brethren die in prisons,—
Thy brethren toil in chains;
The body is racked by hunger,
And the heart has sharper pains.

"Grey heads 'neath the weight of labour
Are sinking into the grave,
And tender hearts are growing hard
For the want of a hand to save.

" Thousands of men, thy brethren,
Are perishing around;
And thou pourest out thy cup of life
Upon the barren ground.

" Rise, gird thee for true labour;
Rise, arm thee for the fight.
Go forth to earth's old battle-field;
Strike boldly for the right!

" Rise, cast thy dreamings from thee;
Rise, clothed with vigour new;
This fallen earth is no place for mirth;
Arise, go forth and *do!*"

A thrill of fervent purpose
Through all his nature ran,
And from that sleep of visions deep
The Boy awoke a Man.

He trod with a steadfast aspect
Through beauty and weal and ill,
And his eyes were lit and his frame was knit
By the strength of a fixèd will.

And the sun to his strong purpose
Was but the lamp of life,—
The abounding earth, in her beauty and mirth,
But the field of the mortal strife.

Where the nations lay cold and torpid,
'Neath ages of wrong and shame;
With the patience of love the poet toiled
Till life to the stiff limbs came.

In the thick of the ancient battle,
Where the strong bear down the weak,
With the flaming swords of living words
He fought for the poor and meek.

Where'er were wrongs to be righted,
Or sick to be soothed and upheld;
Or a generous deed laid hidden;
Or a generous purpose quelled;

Or a noble heart lay sinking,
For the want of a cheering word;—
The music of his earnest voice
Above the din was heard.

Till the sneer of scorn was silenced,
And the tongue of envy hushed,
And a tumult of wild, exulting praise
Throughout the nations rushed.

And they hailed him King and Hero,
And hasted his steps to greet;
And they crowned him with a golden crown,
And bowed beneath his feet.

But yet once more the shadow
Over his soul was thrown,
And he on the height of his human might
Lay desolate and lone;

Till, in his helpless anguish,
His spirit turned on high,
And he called on the God of his childhood
With a loud and bitter cry.

" O God, they call me Hero,
And bow the reverent knee,
But I am not God, nor a godlike man,
That thus they kneel to me.

" They call me Lord and Master;
They call me just and good;
And I cannot stay my failing breath,
Nor do the things I would.

" They cry on me for succour,
But in me is no might to save;
They hail me as one immortal
And I sink into the grave.

" Thou—only Thou—art holy;
With Thee, with Thee, is might;
Oh, stay me with Thy love and strength,
Oh, clothe me with Thy light!"

IV.

It was no spell of slumber
Which came upon him then;
No fitful gleams of a land of dreams,
Which burst on his dazzled ken:

But he stood upon the borders
Of the land which we see afar,
When earth's firmest ground dissolves away,
And men see things as they are.

He saw a young child standing
In a famine-stricken land,
Entrusted with a bounteous store,
The gifts of a gracious hand.

He saw it scatter its treasures
In idle and thankless waste;
And when from its idlesse startled,
It gave away the rest,

And the grateful people hastened
To garland its guilty head,—
It took the homage as its due,
Then cried like the rest for bread.

And stung with shame and anguish,
He cried, "It is I; it is I;
Father, forgive, forgive my sin!"
And he cried with a bitter cry.

That cry reached the heart of the Father:
Once more he looked on high,
And in the depths of heaven,—
In the calm of the upper sky,—

He saw 'midst the sea of glory,—
A glory surpassing bright,
One crowned with a crown of inheritance,
Clad in unborrowed light.

He saw Him leave the glory,
And lay aside the crown,
And to that land of famine
Came, touched with pity, down;

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And gird Himself for service,
And minister to all:
No service was for Him too mean,
No care of love too small.

But men paid Him no homage,
They crowned Him with no crown;
And the dying bed they made for Him
Was not a bed of down.

What more then met his vision
Falls dimly on mortal ears;
The angels were mute with wonder,
And the poet with grateful tears.

The rebel will was broken,
The captive heart was free,—
"O Lord of all, who servedst all,
Let me Thy servant be!"

He woke; once more he found him
In the home where he played a child;
His mother held his feverish hand,
His sisters wept and smiled.

He loved them more than ever,
With a pure and fervent love;
He loved God's sun and earth and skies,
Though his home lay far above.

His poet's crown lay near him
Fused to a golden cup;
It would carry water for parchèd lips,
So he thankfully took it up.

He went in the strength of dependence
To tread where his Master trod,
To gather and knit together
The family of God:

Awhile as a heaven-born stranger
To pass through this world of sin,
With a heart diffusing the balm of peace
From the place of peace within:

With a conscience freed from burdens,
And a heart set free from care,
To minister to every one
Always and everywhere.

No more on the heights of glory
A lonely man he stood;
Around him gathered tenderly
A lowly brotherhood.

They spent their lives for others,
Yet the world knew them not,—
It had not known their Master,—
And they sought no higher lot.

But the angels of heaven knew them,
And He knew them who died and rose;
And the poet knew that the lowest place
Was that which the Highest chose.

E. C.

LUTHER'S PARABLES.

WHATEVER may be the reason, German literature is rich in parables; and some of them, as our readers may hereafter have the opportunity of judging, are remarkably beautiful. A few are to be found scattered here and there in the writings of Martin Luther, and we give them as not only the oldest specimens, but as lively illustrations of their author's mind. Some may think that their style is too playful, and their fancy too free; but those acquainted with the old Popish Mysteries will feel no surprise at the undignified *dramatis personæ* in "The Ass and the Lion," and an excuse for the ponies and playthings with which the "Boys' Paradise" is peopled must be sought in the circumstance that the allegory is addressed to a child who had never seen the harps, and the palms, and other objects employed in Scriptural imagery. He wished to paint a picture which would at once speak to the eye of his own German boy; to an older correspondent he would doubtless have used other language. It may be added, as characteristic of the writer's cheerful and fatherly spirit, that the following letter was penned amidst the anxieties of the Augsburg Diet. Our version of "The Ass and the Lion" is somewhat abridged.

THE BOYS' PARADISE.

Grace and peace in Christ be thine, my well-beloved boy! It does my heart good to see thee learning well and praying diligently. Do so, my son, and continue therein, and when I come home I will bring thee a fine fairing. I know a beautiful pleasure-garden, and there are many *children walking* there, and they have on golden coats, and

under the trees they gather the finest apples and pears, and they sing and leap about, and are merry; and they have beautiful little ponies too, with golden bits and silver saddles. And I asked the man whose the garden was, To whom do these children belong? And he said, These are the children who love their prayers, and who delight to learn, and are pious.

Then said I, I also have a son; his name is Johnnie Luther: might not he come, too, into the garden, that he may eat of these fine apples and pears, and ride upon one of these beautiful little ponies, and play himself with these children? Then the man said, Yes, if he takes delight in prayer, and is pious, and learns well, he may also come into the garden, and little Philip and Justus too; and if they come all together, they shall have fifes, and trumpets, and drums, and all manner of fine playthings, and they shall dance there, and have little cross-bows to shoot with.

Then he showed me in the garden a beautiful meadow, prepared for dancing; and hanging there, there were fifes and drums of pure gold, and fine silver bows. But it was early, and the children had not dined yet. And therefore I could not wait for the dance, but I said to the man, Ah, my dear sir, I will go quickly, and write all that to my dear little son Hans, and tell him to be diligent at his prayers and at his lessons, and to live in God's fear; that he also may come into this garden. But he has a good aunt, too—aunt Magdalene,—and he must bring her with him. And the man said, It is well: go and write so to him.

Therefore, my dear little boy, go on and learn and pray heartily, and tell Philip and Justus to do the same; and so you will all come together into the garden. And so I commend you to Almighty God. Greet Aunt Magdalene, and give her a kiss on my account.

THE PROPS OF THE FIRMAMENT.

Two signs I have had lately. I was looking out of my window at midnight, and I saw the stars,—the whole majestic vault of God supporting itself, without my being able to see the columns on which the Master rested it; but it fell not. There are men nowadays who insist upon finding out these invisible columns,—nay, who insist upon touching them with their own hands; and because they cannot achieve this, they tremble, and lament, and beat their breasts, fearing the firmament is about to rush down upon them. The heavens will not stir any the more for their groping.

In the morning, I saw huge, heavy-laden clouds floating over my head like an ocean. I saw no pillars supporting the enormous masses: yet they fell not, but, saluting me gloomily, passed on; and as they passed, I perceived beneath the curve which had sustained them—a delicious rainbow. It was very slender and very delicate, and some might have trembled lest the heavy clouds should destroy it, yet its slight aërial line was strong enough to bear all that weight, and protect us from danger. We have among us too many who fear the clouds and distrust the rainbow: they would fain ascertain, by some experiment of their own, the exact force of the rainbow; and as they cannot do this, they are all alarmed lest the clouds should break, and overwhelm them in their fierce waves. The clouds are very heavy, they say, and your rainbow is very slight. Time will try its strength.

THE ASS AND THE LION.

The young Lion was rightful king; but, suborned by disaffected councillors, and for purposes of his own, the Fox took means to secure the election of the Ass. A parliament was convened, and when the usual preliminaries were over *the Fox stood* up. He coughed and called silence. He

expatiated on the present necessities of the empire, and dwelt at great length on the miseries which they had suffered under the Lion kings. And when he saw that the assembly was fairly weaned from its race of hereditary sovereigns, he "ventured to propose, as a fit and proper person," their friend the Ass. He spent a whole hour in his praise. He was not at all proud or tyrannical; he was singularly patient; would allow another animal to pass for something, and was always frank and accessible; he could do a deal of work, and would be content with small honour and few taxes. "Besides," he added, observing the yielding mood of his audience,—"besides, dear sirs, we have to consider that he has been divinely appointed to this very end. You may see his designation in the fact that he always carries on his shoulders a cross."

When the Fox mentioned the cross, all the Estates of the empire were full of astonishment, and shouted loud approbation: "Now we have found the proper king, who, both temporally and spiritually, can rightly administer the government." Then every one had something to commend in the Ass: one praised his fine long ears, so good for hearing confession; another said he had quite a remarkable voice, which would do charmingly for preaching or for singing in the church. Nothing, in fact, about the whole Ass, that was not worthy of royal or of papal honour. But excellent above all other virtues shone the cross on the back. And so the Ass was chosen to be king among the beasts.

But the poor young Lion went about dejected, like an orphan despoiled of his hereditary empire, till some old, pious councillors took pity on him. And they spake among themselves, "What a scandal it would be to let the young king be thus shamefully driven away; his ancestors have never deserved that at our hands." So they called the *Estates again together,* and the oldest of them stood up

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— an aged Dog, who had been a faithful councillor of the former king, and a fine speech he made, setting forth that their election of the Ass had been too rash and hasty. It was not all gold that glittered. The Ass might, after all, in spite of the cross on his back be but a sham. The Lion had shown his bravery in action, but the Ass had never done one worthy exploit. And if a war should arise, it was a serious question of what avail the mere cross could be to them, if there were nothing brave behind it.

The Dog's earnest speech was not without effect. The Fox and the unfaithful councillors began to fear, and said, "What had once been resolved by the Estates must remain so." And at last, when the Dog pressed the assembly hard by the consideration of the superiority of the Lion over the Ass in action, it was agreed that, though there could be no new election, the two candidates should contend for the empire, and he who should win should be king. The day of trial was appointed, and all the beasts met; the Fox clave to the Ass, the Dog held by the Lion. The Ass let the Lion choose the form of combat. Lion spake, "Let it be he who shall spring over this brook without wetting his feet — he shall have gained." And the brook was large. The Lion made a leap, and sprang clean across, easily as a bird might have flown. The Ass and the Fox thought, Well, we were not kings before either; we must venture now, lose or win. So the poor Ass leapt, and — plash — there he lay, like a log, in the middle of the stream. Then the Lion came to the bank, and said, "Methinks the feet are not quite dry." But see now what luck and craft may do. When the Ass had fallen into the water, a poor little fish, crazy with affright, had run, without knowing where, into the Ass's ear. And when he had stepped out, and the beasts had laughed well at this adventure, the Fox sees him shake *the fish out of his* ear. "Attend," he cries. "Where are

those now who despise the cross, as if there were no virtue in it? My lord and king the Ass might have cleared the brook as well as another, but that would have been but a poor act to prove the excellence of the cross, seeing that without the cross the Lion and other animals can do it just as well as he: but as he leapt, seeing a fish in the stream, he sprang after it, and that the miracle of the cross might be the greater, he would not catch it with his feet, or in his mouth, but in his ear. Let the Lion do the same, and then let him be king." With such talk the Fox again made great commotion, and the cross was about to win. But the Dog was sore annoyed with this mischance, and the more to see Reynard, with his fox-tail, so befooling the multitude, and began to bark out vehemently that it had just so happened, and was no miracle. But that there might be no disturbance through the biting of the Dog and the Fox, it was seen good that the Ass and the Lion should go alone to a certain place, and settle the quarrel there by themselves. So they went to the foot of a hill together.

The Lion said, "On yonder side the mountain lies a mill; he who comes thither first shall have gained: wilt thou run here below, or over the hill?" The Ass says, "Run thou over the hill!" The Lion, knowing this to be the last trial, ran as fast as his bodily powers could carry him; the Ass stood still where he was, saying, "I should only be made a laughing-stock: I have no fancy for such labour-in-vain." When the Lion gets over the hill, behold! there is an ass standing beside the mill. "Eh, what?" he exclaims, thinking it to be the same: "has the foul fiend brought thee here already? Well, let us try back again to our old place." And when he comes over again, he finds the Ass on the spot where he had left him, and must now own beaten, and confess that the cross is not to be trifled with. So the Ass remained king, and his *race have held dominion* in the animal world unto this day.

LIFE, IN ITS LOWER FORMS.

Infusoria.

This brief sketch of the history of the *Vorticella* will serve to illustrate that of the whole class of Infusoria; as the facts, with slight modifications, are common to all. The round bodies resembling beads, which we mentioned as scattered in the interior of the bell, are characteristic of the whole of these animals. Professor Ehrenberg considers them to be so many stomachs, connected either with the common mouth, or with an intestinal canal which runs through the body. To this conclusion he came by prosecuting a series of curious and ingenious experiments. By mixing coloured substances, such as carmine or indigo, with the water in which the animalcules were living, he found that they readily imbibed them, and that the colouring matter was presently accumulated in these internal vesicles, which then appeared crimson or blue, according to the pigment employed. Hence he applied the name *Polygastrica* to the class, a term which would be as appropriate as it is significant were it quite certain that his conclusions legitimately follow from his premises. But later naturalists have doubted that these vesicles are stomachs at all, nor have they been able to discover any such common tube as the learned Professor describes. It seems more probable that the true stomach is a large cavity irregularly hollowed out of the centre of the body.

There is another curious organ found in a large number of these animals, the office of which is even more puzzling. *It is commonly* known as the contractile bladder. If we are

watching one of these animalcules, a *Paramecium*, for example, we see in a particular part of the body a circular space perfectly clear and colourless, which gradually enlarges until it takes the appearance of a distended globose bladder. When arrived at its utmost dimensions it suddenly contracts to a point, and presently begins to enlarge, until it reaches its former size and appearance, when it again contracts as before. This alternation of distentions and contractions goes on continuously; the latter taking place at regularly measured intervals, perhaps of about a minute. We feel assured, from numerous observations, that the bladder is filled by some fluid which gradually percolates into it, and that this is discharged by the periodic contraction; but what is the nature of this fluid, and what relation the process sustains to the general economy, we are ignorant.

The external organs of these animals are few and simple. Of all, except the lowest forms, the mouth is surrounded by rows of strong cilia, by the vigorous vibrations of which currents are perpetually formed in the water, which bring to the entrance of the stomach whatever particles of matter suitable for food there may be floating about. Besides these, the whole surface of the body is in many species clothed with delicate cilia, which act as paddles to row the animal rapidly along. A few of the more highly organised genera are furnished with bristles, styles, or hooks, which appear to be merely cilia more than usually developed and deprived of vibratile power. They serve as instruments of locomotion for crawling or climbing about aquatic plants. In many species we see a red speck, which is probably an organ of sight in a very rudimental condition; perhaps possessing a sensibility to the presence of light without distinct vision.

Some of the members of the class are protected by a shell formed of *silex, or the substance* of flint. These shells may

be considered as indestructible, and they are found in a fossil state, the memorials of Infusoria which existed in former ages in multitudes that defy calculation, and almost exceed belief. There is in Bohemia a mountain composed of a substance which, from its use in the arts, has long been known by the name of *polishing slate.* Professor Ehrenberg has found this substance to be entirely composed of the shells of fossil Infusoria, the genera and species of which can even yet be distinguished. Of these, he computes that 41,000,000,000 are contained in every cubic inch of a stratum fourteen feet thick. On the shores of certain lakes in Sweden a fine powder is found in large quantities resembling flour in appearance. The natives of these districts have long been in the habit of collecting this, and of using it, under the name of *bergmehl,* or mountain-meal, as an article of food. This, also, the microscope reveals to be composed of the remains of incalculable millions of shelled Infusoria.

Some interesting examples of a protecting case of different structure are found in the family *Tintinnidæ.* They are animals allied to the *Vorticella,* but inhabiting a transparent tube, open at the top, of a gelatinous or membranous texture. This case is affixed to the stems of water-plants, sometimes by its base, when it is erect, at others prostrate, adhering to its side, and occasionally placed at the tip of a footstalk, like a tiny handbell turned upside down. The animalcule protrudes to a considerable distance from the margin of its glassy cell, unfolding a ciliated mouth like that described in the preceding paper; but on the least disturbance it shrinks, a little shapeless ball, down to the very bottom of its tube. Sometimes two animals dwell in the same tube, and their amicable movements are viewed with ease through the transparent walls of their miniature crystal palace.

Those who have never looked through a microscope can

scarcely form an idea of the beauty of these little animals. Engravings of many of them, and technical descriptions, are, indeed, to be found in published works; but of their brilliant transparency, their high refractive power, resembling that of flint-glass, their sudden and sprightly motions, their general elegance and delicacy, and the appearance of intelligence which they display, neither books nor engravings will give any adequate conception.

On the surface of stagnant ponds may often be seen, especially in spring, a stratum of what looks like a bright green powder. If a small quantity of this be taken up and examined, many curious and beautiful forms will be discovered. A large portion of the substance will probably consist of different species of the genus *Euglena*, little active creatures, somewhat resembling fishes in shape, of a rich green hue, with a large red eye. Among them we may find what is sometimes called the High-priest's Breastplate (*Gonium pectorale*), consisting of sixteen oval green masses, disposed regularly in a transparent shell of square form, like emeralds set in a plate of the purest glass. Another brilliant casket of gems is the *Pandorina morum* (see Fig. 2, in last No.), a species which we have taken in the neighbourhood of London. It is a crystal globe enclosing about thirty globose animals of a rich green hue, from each of which proceeds a long, whip-like proboscis, about as long as the radius of the globe. By means of these filaments it proceeds rather quickly, rolling over in an irregular manner as it goes. Its appearance is very rich and beautiful, particularly when the light is transmitted, as it sometimes is, through the interstices of the animalcules, and gleams through their dark-green bodies. The newly-invented paper-weights, consisting of balls of solid glass, in which are imbedded some beautiful coloured objects, will give an idea of this creature.

Many kinds are interesting from the close resemblance

in form which they display to other well-known objects, animate or inanimate. The *Volvox* (Fig. 3) rolls majestically through the water, revolving regularly on its axis like an artificial globe; and as it is of greatly superior dimensions to most others of the class, we may compare it to the planet Jupiter surrounded by a host of moons. The *Stentors*, also, are of comparatively large size, being distinctly visible to the naked eye; these resemble trumpets in form. One beautiful species, hence named *Trachelocerca olor*, charms the eye by its close resemblance to a swan. It has a plump, rounded body, a slender-pointed tail, and a very long and graceful neck, the motions of which, thrown into arching curves, and protruded in every direction, give the most lively representation of the elegant water-fowl after which it is named. Indeed, in one species of this genus, *T. biceps*, we may see the living representative of the celebrated bird usually considered to be as scarce as the lost *Dodo* itself — the *swan with two necks*.

The genus *Amœba* has long been celebrated among microscopists, from its power of constantly changing its form, whence it is sometimes called the "Proteus." It consists of a mass of clear, jelly-like matter, with a few granules, two or three of the supposed stomachs, and a contractile bladder. But its peculiarity is, that which we have just mentioned. It is ever altering its outline; and to so great a degree, that not only are no two ever found alike, but the same specimen does not retain the same shape for two successive minutes. Here a point projects and gradually pushes out more and more, while a sinuosity is forming in some other part; one portion is contracting, another enlarging; so that the only idea that can be given of its shape, is by comparing it to the figure of a country upon a map, which is perpetually transformed into that of some other *country*.

These are but a few examples of the variety of form which this curious class of animals presents to us: it remains now only to give to those who may be desirous of examining them for themselves a few instructions to aid their researches. A good microscope is, of course, indispensable; if the study is intended to be pursued scientifically, a compound achromatic, with magnifying powers ranging from fifty to five hundred diameters, must be employed; but very much entertainment, and a good idea of many of the forms, may be obtained with an ordinary simple microscope of three powers. The penetrating and defining properties of a microscope are of more importance than mere enlargement.

If we were asked where specimens are to be obtained, we might reply, Almost everywhere, provided water be present: but even in the air they have been lately detected by the eminent Prussian Professor. In ditches and ponds, in the trenches of meadows, in the ruts of highroads, in marshes, in lakes and rivers, in estuaries, and even in the sea, various species may at almost all times be found. Stagnant waters, especially such as are covered with a thick scum, contain some species in immense abundance, but these are generally of the simplest structure: little hollows in boggy ground, especially where a red sediment betokens the presence of oxide of iron, frequently contain species of great rarity and beauty; but clear standing water, in which the more delicate aquatic plants grow, and particularly when covered with duck-weed, will be found the most productive resource both for number and variety.

The mode of collecting them is very simple. The water must be dipped up in a phial, which may be tied to the end of a walking-stick; a moment's examination of its contents with a pocket lens will determine whether the water is worth *carrying home*. If no moving particles are seen,

another dip may be taken elsewhere; should this likewise prove valueless, another locality should be sought.

When brought home, a small drop may be taken at random, and placed in what microscopical observers call an *aquatic box* or *live-box;* a small fragment of duckweed-root, or the stem of some slender water-plant, put in also, will aid the search: this should then be examined with a low power at first, the observer proceeding to the use of higher powers for the closer examination of particular specimens.

Should any of our readers who may possess a microscope, or access to one, be disposed to investigate these minims of existence, we shall be disappointed if they do not find objects which will not only please their fancy and inform their understanding, but also give them fresh and unexpected ideas of the ways of Him whose glory is no less displayed in the construction of an animalcule than in the creation of a solar system.

P. H. G.

PAPERS ON THE AIR AND SKY.

OUR ATMOSPHERIC FOOD.

We have now to explain the beautiful arrangement by which the due proportion of oxygen and carbonic acid in the atmosphere is maintained. As has already been stated, animals in breathing diminish the amount of oxygen. This is true in respect to insects, fishes, and the boneless denizens of the earth or sea, as well as in regard to man, birds, and quadrupeds. All these in respiration absorb the vital oxygen into their lungs or gills, and there, uniting with the carbon of which their bodies so largely consist, it forms carbonic acid; and in this close and wonderful alliance, wrought by the power of chemical affinity, it is breathed forth again, and thus returned to the atmosphere. As this process has been going on continuously, and as, during the long ages with which geology makes us acquainted, myriads and myriads of mouths have incessantly been breathing the vital air, we should naturally expect that the oxygen would by this time have been wholly converted into carbonic acid, and in that case man and every other living creature must have perished. But it has been so ordered that the animal kingdom, which owes its own sustenance to the vegetable, should restore to the air what the vegetable itself requires.

At this season many of us have in our houses hyacinths, each of which, a short time ago, was placed a dry bulbous root at the top of a glass filled with water. Since then it has put forth long rootlets, and shot upwards leaves green and large and graceful, and a stalk which we hope soon to see covered *with a thick* cluster of richly-tinted and fra-

grant flowers. Now had a beautiful building risen up gradually before our eyes, with its walls and buttresses, succeeded by gables and turrets and pinnacles, rich in architectural tracery, and shooting above them all the lofty spire, and during all the interval had no mason or carpenter been seen, nor the sound of any tool been heard, we should feel that it was little less than a miracle. Yet here in the growth of a plant we have the wonder constantly recurring. We know it to be the work of the Divine Architect; but whence the materials? The full-grown hyacinth was not contained in the bulb; still less was the entire substance of the oak enwrapped in the tiny acorn.

The materials employed in the construction of the plant are very few. The soil, in some cases, but not in all, supplies small quantities of mineral ingredients. It is from the disintegrated rock that the plant derives its lime and potash, its silica, phosphoric acid, and sulphur; but the great bulk of every tree or herb is composed of three elements, carbon, hydrogen, and oxygen, along with a little nitrogen. In varying proportions, these elements form the woody fibre, the different cellular tissues and colouring matters, and the fragrant oils; and it is from the atmosphere that the plant derives them. The carbon is reduced by the leaf from the carbonic acid wafted to it by the breezes; the hydrogen is yielded by the moisture in the air, or by that which has previously descended as rain; and as to the oxygen, there is abundance of it in the carbonic acid and water decomposed. Philosophers are divided as to the source of the nitrogen in plants. There is no question that the ammonia in the atmosphere affords it, but that element exists in a quantity so minute, that it is almost impossible to regard it as the only source. A Scotch chemist has lately declared his conviction that the nitric acid occasionally present in the air must be regarded *as one origin of this* element, while a French chemist shows

grounds for believing that, to a certain extent, plants can assimilate the free nitrogen gas which forms the great bulk of our atmosphere. This is contrary to the generally received opinion, and experiments with the most costly apparatus are now being made in France with a view to the matter.

How far plants are independent of the oxygen of the air may be proved by placing them in the presence of water, in atmospheres of pure nitrogen or hydrogen, coal-gas, carbonic oxide, or even in what Davy, from its wonderful effects on the human constitution, termed "laughing gas." In any of these the plant will live for weeks or months, though it will not increase in weight, unless perhaps by the absorption of water. In any of these gases an animal would almost immediately perish.

Carbon exists in the plant only in a state of combination. In its pure condition we are all acquainted with it, as the black shapeless charcoal, or the crystallised and sparkling diamond. That plants derive their carbon mainly, if not wholly, from the carbonic acid floating in the aërial ocean, has been ascertained beyond all question. Most greedily do they absorb this food, though too large a supply may render them obese and apoplectic, or cause them to die of repletion.

From the vapour in the atmosphere plants also obtain their hydrogen. And the same breeze which has nourished our hyacinth has borne the self-same gaseous banquet to a thousand other species which have opened their leaves to catch its grateful offering. From the same gases the oak has built its sturdy timber, the vine has elaborated its rich grape-clusters, the moss has shaped its tiny leaves, and the lily has constructed its delicate flowers. Snatched from the viewless wind, these gaseous atoms become the bony kernel of the vegetable ivory or the exquisite pulp of the pine-apple; *and variously* combined and packed up, they swell

the ear of corn or fill with an exquisite attar the fairy flasks in each rose-petal. So that, thanks to Flora's chemistry, a loaf of bread is little more than concentrated air; and it is mainly for the condensed gases of foreign countries that we pay in discharging the accounts of the grocer, the wine-merchant, and the fruiterer.

From all this we learn that the vegetable feeds on the mineral kingdom,—that decomposed rocks, the air, and the clouds, afford it all the materials of its growth. Equally true is it that the animal is wholly supported by the vegetable kingdom. Indeed, this is the best distinction that can be drawn between these two great classes,—the vegetable feeding on the unorganised, the animal feeding on the organised. This distinction even is, perhaps, not absolutely correct; for those sharp lines of demarcation which man is constrained to invent appear to have but little existence in the plans of the Creator.

It may be objected to the statement, that the animal is wholly supported by the vegetable kingdom, that many prey upon and derive their subsistence from other animals: a whale will swallow a shoal of shrimps, a hyena will feast on the carcass of an elephant. But then the shrimps and the elephant have derived their sustenance from plants, and thus the tissues of the herbivorous animal become the nutriment of the carnivorous. Directly, or indirectly then, may all the nourishment of the countless swarms of animate existence be traced back to the vegetable world; and we have already seen whence plants derive *their* support. This leads us to a result which may be somewhat startling. It is true that hunger, though it "breaks down stone walls," never eats them, and that it is only in fable that the chameleon or any other animal feeds upon air; and yet it is no fable, but strict scientific fact, that through the interposition of the vegetable kingdom we derive the whole nou-

rishment of our bodies from the stones of the field and the winds of heaven.

The question arises, "How is that the vast number of plants and animals do not exhaust the air of its minute proportion of carbonic acid, not to speak of other elements?" The reply is contained in the opening remarks of this paper: that the oxygen received into our lungs consumes the carbon in our system, and the oxygen and carbon are breathed forth again in union as carbonic acid. Thus the carbon is restored to the atmosphere in the very same condition in which it was first appropriated by the plant. And what is true of carbon holds good also in respect to every other element. The hydrogen is also breathed forth as vapour of water: the nitrogen is again transformed into ammonia; and as to the lime, and other earthy constituents of our frame, they are returned in due course to the earth,—that earth through which the roots of our forest trees twine.

Could we trace the history of a particle of carbon, it would doubtless be most romantic. It might be something of this sort. It first saw the light ages and ages ago, issuing from the mouth of a volcano as carbonic acid. Over the earth it flew and visited the stormy clouds, and as descending it swept along the sea, it was dissolved by the briny wave. It soon became part of a coral rock. The coral reef was raised by gradual upheavals till it stood high and dry above the water. The tiny inhabitants of course were dead, but their solid abodes became a limestone rock. There our particle of carbon, as carbonic acid in close embrace with a particle of lime, was stored up for unnumbered ages. The rock was afterwards quarried, and from the lime-kiln it was expelled again to take its flight over the green earth, till caught up by a vigorous rose-tree it became decomposed and stowed away in the green covering of its leaves. Here a caterpillar ate it, and it formed part of his tiny body. As the winter

came on, it was hung up in a dry stiff chrysalis, which, as the warm spring gladdened the earth, was split open, and from it our carbon escaped a part of a new-winged, many-coloured butterfly. The butterfly died, and his little corpse was picked up by a bird; but scarcely had our atom become assimilated by the bird, when it came roasted to the table of a man. Into his stomach and through his arteries our particle passed, till stored up in the muscle it lent itself to add strength to his right arm; but this muscle was ever changing, and soon it is given up again to the blood and burnt in his veins, and is breathed forth from his lungs. Away now it is flying once more, to take part in wonderful transformations.

Thus is there formed a great circle, one link of which is the atmosphere. The animal and vegetable kingdoms are not antagonistic, but mutually dependent. It is evident that the more plants the earth supports the more animals can be fed. It is equally true, that through the agency of the atmosphere the more animals feed the more food is produced for the plant. Indeed, the destruction of the plant affords the elements for its reconstruction; and not only do the breathing and death of the animal contribute to the life of the plant, but indirectly also to the birth and growth of other individuals of its own order.

We already begin to see something of the wisdom by which this arrangement has been contrived; but who shall solve the intricate questions involved in the management of the whole? The more we investigate, the more will our wonder grow as we exclaim with the Psalmist, "The eyes of all wait upon thee, and thou givest them their meat in due season. That thou givest them they gather. Thou openest thine hand and satisfiest the desire of every living thing."

J. H. G.

SKETCHES IN ORNITHOLOGY.

No. I.

THE PARROTS AND THEIR KINSFOLK.

MACAWS, COCKATOOS, LORIES.

THE MACAWS (Genus *Macrocercus*) are among the grandest of the group, their large bodies and lengthened tails in some cases measuring upwards of three feet. Their plumage is certainly elsewhere unsurpassed in richness of colour and strength of contrast, but in its want of blending it sometimes rather too much reminds us of the state-dresses of serving-men in livery. Though their carriage is grave and stately, their physiognomy seems coarse and unaccommodating, from the disproportionate size of the head and beak, the bareness of the countenance, and the wrinkled, mealy orbits of the somewhat selfish eyes. Some allowance, however, must be made for their pampered state and enslaved condition. Let us remember that we rarely ever see them except sideling on a cross-pole, with an enchained foot, and can scarcely judge even of their outward lustre, as it would, doubtless, show itself when on resplendent wings they emerge from the leafy darkness of their native forests, and seek the open sunlit spaces of the bright savannahs and the glittering streams. What a difference between their natural roosting-places, the majestic palms and other lofty trees, covered with the varied tracery of those rich festoons which form the peculiar woodland features of the tropics, and a *perpendicular pole, encircled* for protection by a coat of tin!

At the same time it would be very wrong, merely because we cannnot accomplish all the natural accessories of scene and situation, to despise or in any way make light of the fair sights exhibited to us in our great zoological collections, which, however, and necessarily, constrained or artificial in their order and arrangement, afford an ample supply of great and good amusement, and a most legitimate source of actual knowledge.

Who has ever witnessed a flaming *flight* of these magnificent birds, "proud of cerulean hues" of blue and buff, orange and scarlet, ruby and emerald, or all combined, and shooting like meteors across a cloudless sky, themselves a mass of "gorgeous cloudland?" "I," says Commodore Lord Anson, "I have seen it;" and it is described in the voyage of that great circumnavigator. A party, on one bright and beautiful morning (as we trust it was), had proceeded to view a grand rapid in the Isle of Quibo:—

"Near the north-east point of the island," says the narrator, "they discovered a natural cascade, which surpassed, as they conceived, everything of this kind which human art or industry hath hitherto produced. It was a river of transparent water, about forty yards wide, which ran down a declivity of near a hundred and fifty yards in length: the channel it ran in was very irregular, for it was entirely formed of rock; both its sides and bottom being made up of large detached blocks, and by these the course of the water was frequently interrupted, for in some places it ran sloping, with a rapid, but uniform, motion, while in other parts it tumbled over the ledges of rocks with a perpendicular descent. All the neighbourhood of this stream was a fine wood; and even the huge masses of rock which hung over the water, and which, by their various projections, formed the inequalities of the channel, were covered with lofty forest-trees. While the Commodore and those who were with him, attentively viewing the place, were remarking the different blendings of the waters, the rocks, and woods, there came in sight, as it were still to heighten and animate the prospect, a prodigious flight of macaws, which, hovering over this spot, and often wheeling and playing on the wing about *it, afforded a most brilliant* appearance, by the glittering of the sun on

their variegated plumage; so that some of the spectators cannot refrain from a kind of transport when they recount the complicated beauties which occurred on this extraordinary waterfall."

Mr. Waterton, too, we remember, has witnessed, though he has scarcely described, this wonder. He says well and briefly, "It is a grand sight in ornithology to see thousands of aras flying over your head, low enough to let you have a full view of their flaming mantle." The macaws are all natives of the tropical regions of South America, and occur in no other countries. They generally show themselves in pairs, perch near the summits or on the highest branches of lofty trees, wander during the day, it may be a few miles from some favourite resting-place, and return to it before night. They build in hollow trunks, generally deposit two eggs at a time, and are said to lay twice a-year. The male shares with the female in the labour of incubation, and in the rearing and instruction of the young. The latter are easily tamed, and are affectionate and familiar with those to whom they are accustomed; but, like most other parrots, and the generality of sensible people, have no great idea of the society of strangers. As regards the economical uses of these birds, at least in earlier times, we may here note that macaws, probably of various sorts, formed a favourite food of the ancient Peruvians, and were frequently presented by that peculiar people to their sovereign *Incas* as an agreeable gift.

The Cockatoos (Genus *Plyctolophus*) form a curious group of the Psittacidæ, and are distinguished from the generality of other parrots by a graceful tuft or crest, which they can raise or depress at pleasure. They inhabit woods, feeding on fruits and seeds, making their nests in the hollows of decayed trees, and are for the most part natives of Australia and the Indian Islands. They are extremely docile *and affectionate in confinement*; but, as linguists, seldom go

beyond the pronouncement of their own name. We have sometimes thought it an odd thing that the same word, which, when heard as a wild cry through the wooded wildernesses of New Holland, excites the natives to the use of that murderous weapon called the *boomerang*, should now, in many courtly houses, and even in royal palaces, be a note associated with love and kindness to the inferior creatures. But so it is. On the deserving character of cockatoos we need not dwell, although it is not always merit that meets reward. Some seasons back, a good old lady in London left a considerable annuity to a cockatoo,—that is, she bequeathed the interest of a sum of money to be paid to a certain individual (an unfeathered biped) so long as, and no longer than, her favourite bird should be well cared for and kept in life. We need scarcely say that, like all other annuitants under similar circumstances, it enjoys the best of health, and its keeper (who is, in a financial sense, its partner) dare not even scold it when it screams. Many others, we hope and doubt not, also live in ivory palaces, and fare sumptuously every day. This they owe partly to their own good conduct; partly to what M. Guizot calls civilisation. Capt. (now Sir George) Grey (in his "Travels in Australia") presents us with the other side of this picture. He there tells us that, perhaps as fine a sight as can be seen in the whole circle of native sports is the killing of cockatoos with the kiley or boomerang:—

"A native perceives a large flight of cockatoos in a forest which encircles a lagoon; the expanse of water affords an open, clear space above it, unencumbered with trees, but which raise their gigantic forms all around, more vigorous in their growth, from the damp soil in which they flourished; and in their leafy summit sit a countless number of cockatoos, screaming and flying from tree to tree, as they make their arrangements for a night's sound sleep. The native throws aside his cloak, so that he *may not* even have this slight covering to impede his motions; draws his *kiley from his belt*, and, with a noiseless, elastic step, approaches the

lagoon, creeping from tree to tree, from bush to bush, and disturbing the birds as little as possible: their sentinels, however, take the alarm; the cockatoos farthest from the water fly to the trees near its edge; and thus they keep concentrating their forces as the native advances. They are aware that danger is at hand, but are ignorant of its nature. At length, the pursuer almost reaches the edge of the water, and the scared cockatoos, with wild cries, spring into the air; at the same instant the native raises his right hand high over his shoulder, and, bounding forward with his utmost speed for a few paces, to give impetus to his blow, the kiley quits his hand as if it would strike the water; but when it has almost touched the unruffled surface of the lake, it spins upward with inconceivable velocity, and with the strangest contortions. In vain the terrified cockatoos strive to avoid it: it sweeps wildly and uncertainly through the air, and so eccentric are its motions, that it requires but a slight stretch of the imagination to fancy that it is endowed with life; and with fell swoops is in rapid pursuit of the devoted birds, some of whom are almost certain to be brought screaming to the earth. But the wily savage has not yet done with them. He avails himself of the extraordinary attachment which these birds have for one another, and fastening a wounded one to a tree, so that its cries may induce its companions to return, he watches his opportunity, by throwing his kiley or spear, to add another bird or two to the booty he has already obtained."

The majority of cockatoos are white, parts of the plumage having a faint rose-coloured blush, or slight tinge of yellow; the under side of the crest, when raised, usually exhibiting a richer hue of scarlet or yellow. Of all the pale-coloured kinds, the most beautiful is that named after Mr. Leadbitter. But a better known and much more common species is the sulphur-crested cockatoo (*Pl. galeritus*). It must have a greatly more extensive range than most other birds, if, as many, and we think with good reason, suppose, that the white cockatoo of Van Dieman's Land, that of the continent of Australia, and the species found in New Guinea, are all identical. It is very destructive to fields of new-sown grain and ripening maize, and is, consequently, hunted and shot down in great numbers; but it is still very numerous in New Holland, *moving* about in flocks varying from a hun-

dred to a thousand individuals. It prefers the open plains and well-cleared lands to the denser brushes near the coast; and, except when feeding or reposing on trees after a repast, the presence of a flock, though unseen, is soon indicated by their discordant, screaming notes, the noise of which may be slightly conceived by those who have sustained the captive cry of a single bird, and should be thankful that they are not encompassed by five hundred. "Still," says Mr. Gould, in a praiseworthy spirit of endurance, "I ever considered this annoyance as amply compensated by their sprightly actions, and the life their snowy forms imparted to the dense and never-varying green of the Australian forest;" a feeling shared by Sir Thomas Mitchell, and recorded by that excellent surveyor in a still higher strain, when he states that, "Amidst the umbrageous foliage, forming dense masses of shade, the white cockatoos sported like spirits of light." These birds build in trees, and also in the fissures of rocks. For example, the white cliffs bordering the Murray in South Australia, are annually resorted to by them in thousands, and are said to be almost honeycombed by their proceedings. The females lay two eggs, of a pure white.

One of the most extraordinary of the parrot tribe is an anomalous species (as so many products of those far southern countries prove to be) belonging exclusively to New Zealand. It is named *Strigops habroptilus* by Mr. George Gray, and most people would, on a first introduction, take it for an owl. It is a large bird, of a greenish colour, mottled and streaked with black, and is known in New Zealand, where, however, it is very rare, under the name of *kakapo*, an evident and not very successful attempt in a new species to call itself cockatoo. The most singular fact in its history is, that it is a nocturnal creature, resorting, during the garish light of day, which all the others look on as a glad*some thing, to* darksome burrows formed beneath the roots

Nestor productus.

of trees, or among masses of overshadowing rock. It feeds on the roots of ferns and the outer covering of *Phormium tenax*, the New Zealand flax.

A small and peculiar group of Australian birds belongs to the genus *Nestor*. (See the figure.) The Phillip Island species (*Nestor productus*) is confined to the very limited locality from which it takes its name, — an insulated spot (near Norfolk Island), not more than five miles in circumference. In fact, it is believed to have recently ceased to exist in the wild state, and might now be regarded as an extinct species, except for a few forlorn captives, which still survive in bondage. It feeds among the blossoms of the white Hibiscus, sucking the honey of their flowers. The structure of the tongue is remarkable, not like that of the true honey-sucking parrakeets (*Trichoglossi*), furnished with a brush-like termination, but with a narrow, horny scoop on the under side, which, with the extremity of the tongue, resembles the end of a finger with the nail beneath. We know little of the natural economy of this species. A tame one, seen in Sydney, instead of waddling in the awkward way peculiar to most parrots, according to Mr. Gould, *leaped* lightly "like a *crow*." We don't think crows leap, although, when in a hurry, and with the help of their wings, they make way with a hopping motion. Two we saw this morning were *walking;* that is, they advanced first one foot and then another. But, to return to our parrot. Nestor's voice is harsh and inharmonious, sometimes resembling the barking of a dog. The sexes scarcely differ in plumage, although the young have little of the rich red and yellow markings of the under portions of the plumage in the adult state. What a strange and unaccountable contrast is presented by the extremely restricted existence of this species, now confined to a few cages in Sydney, and the almost bonndless *distribution* of certain other birds (the turnstone,

for example), which wing their unimpeded way by sea and land through every region of the earth!

We may state that, notwithstanding the supposed extinction of the preceding species, the opinion is maintained by some that the New Zealand bird called *Kaka* is identical with it. The latter is described by the Rev. W. Yate, who says it feeds on all kinds of fruit, berries, and farinaceous roots. It bites holes in trees, in which it makes its nest, and lays four, sometimes five eggs, of a pure white. Three birds are generally found together in the same hole,—one male and two females; and during the season of incubation, the nests, though separated, are so close together that either of the mother-birds can sit upon the eggs, feed their neighbour's young, and cover them with one of her wings, without leaving her own nest, or neglecting her own offspring. It is much larger than any other New Zealand parrot, possesses all their mischievous qualities, and, although it learns to imitate the human voice astonishingly, its natural cry, while ranging through the woods, is extremely harsh and disagreeable.*

Another and extremely beautiful Australian group is that of the *grass* parrakeets (Genus *Euphema*), of which the bill is almost concealed by the long feathers of the face. The blue-banded species is a summer resident in Van Dieman's Land, arriving there in September, and departing in February and March. It runs along the ground, making its way nimbly among the various grasses, on the seeds of which it feeds. It is easily domesticated, and forms a most delightful and interesting pet. The "ground parrakeet" of the Australian colonists is *Euphema elegans*, a bird which congregates during the hot seasons wherever there is water

* We take Mr. Yate's statement from Maunder's "Treasury of Natural History," an excellent and accurate compendium of zoology.

in the pools in almost incredible numbers. It often flies at great heights.

A pleasant and peculiar kind, called the *warbling* grass-parrakeet, forms of itself the genus *Melopsittacus*, species *undulatus*, pre-eminent among many fair companions alike for its beauty of plumage, elegance of form, and sprightliness of manner. Although dispersed over a vast extent of central territory in New Holland, it is yet so exclusively an inhabitant of the great inland plains as to be scarcely ever seen between the mountains and the sea. It breeds in the hollow spouts of the eucalyptus, and may be seen feeding in flocks of many hundreds on the grassy plains. The nature of their food and the excessive heat of the climate compel them frequently to seek for water; but before proceeding to drink, they always settle for a time in clusters on the neighbouring trees; and when sitting motionless among the leaves, they so closely assimilate in colour as to be scarcely distinguishable. They breed in December, and erelong gather together in vast assemblages prior to their great migratory movements. The eggs are pure white, and three or four in number. It has been recorded as a curious thing that, prior to the year 1838, these birds were so rare in the southern parts of New Holland that only a single example had been sent to Europe, but in that year they arrived in Liverpool Plains in such countless multitudes that any quantity might have been procured; "and more than once," says Mr. Gould, "their delicate bodies formed an excellent article of food for myself and party." We never indulged ourselves either in parrakeet-pie or cockatoo-leekie, and so cannot instruct our readers in their culinary views of these birds. We wish, however, to retract a statement at the commencement of this article, in which, speaking of the parrot tribe in general, we say, "None of them that we know of sings." *In this we exposed* our own ignorance, or at least

defective memory. We now bear in mind that the species in question is not only interesting from its highly ornamental aspect, but gives utterance to a very animated and pleasant sort of song. In confinement they are frequently billing, cooing, and feeding each other fondly, at the same time expressing their happiness by a low and long-continued inward warbling, as pleasant, we hope, to themselves as we know it is to others. Contentment and cheerfulness are blessed things.

Almost the only other Australian species we shall mention is the singular *ground parrakeet*, of which only one kind is known: it forms the genus *Pezoporus*, and is an exceedingly graceful as well as active little bird, although less sumptuously attired than many of its kindred. Mr. Gould very frequently encountered it in the natural state, and has described its manners with his usual intelligence and precision. Whether the power of perching is entirely denied to this bird has not been clearly ascertained, but it has never been seen upon a tree, nor can any device induce it to take shelter among branches. Its usual haunts are either sandy, sterile districts covered with tufts of rank grass and herbage, or low swampy flats abounding in rushes and other vegetation peculiar to such situations. It is generally observed single, or in pairs; but, from its very recluse habits and extraordinary powers of running, it is seldom or never seen until flushed, and then only for a short time, as it speedily pitches again and runs off to some place of seclusion, often beneath the covert of the grass-tree (*Xanthorhœa*), which abounds in its favourite districts. In flying, it keeps near the surface, goes with great rapidity, making several zig-zag turns in the short distance of a hundred yards, beyond which it rarely passes without again *reaching* the ground. Its flesh is excellent, being, in Mr. *Gould's opinion*, much more delicate in flavour than that of

the snipe, and equalling, if not surpassing, the quail. Its eggs, which are white, are laid upon the ground. This bird, so anomalous in its habits as a parrot, is a native both of South Australia, the islands in Bass's Straits, and Van Dieman's Land.

The last of the family we shall mention are the LORIES and LOVE-BIRDS. The former are remarkable, even among so many gorgeous congeners, for their rich, deep, brilliant colours, their soft, dense plumage, and their comparatively feeble beaks. They are cheerful and active creatures in captivity, but require to be carefully regarded during our winter's cold. Most of the species are found in the Moluccas, and are held in the highest estimation in the East. But one of the most noble kinds, called the King-lory, is native to New South Wales, where it is said to be almost wholly confined to the brushes, feeding on seeds and wild berries. However, when the Indian corn fills, it leaves its umbrageous abodes, and makes frequent and successful forays in large flocks, committing great devastation on that ripening grain. The sexes differ considerably in their outward adorning. The male has the head, neck, and all the under surface scarlet; the neck and wings green; the rump and upper tail-coverts are of a deep rich blue; the tail is black, the bill scarlet, the legs brown. In the female, the head and upper surface are green. Another species known as the red-winged lory (*Aprosmietus erythopterus*) is as exclusively an inhabitant of the interior of Australia as the king-lory is of the thick brushes which extend along the coast. The extensive belts of *Acacia pendula*, which diversify these otherwise arid plains, are inhabited by thousands of the former bird, besides numerous other species, roaming about either in small companies of six or eight or in congregated flocks. Mr. Gould states that he *found it to be altogether* beyond the power of human pen

to describe or convey any true idea of the extreme beauty of the appearance of this red-winged lory when seen among the silvery branches of the pendulous acacia, particularly when the flocks comprise a large number of adult males, the gorgeous scarlet of whose shoulders offers so striking a contrast to the surrounding objects. These Australian birds differ from the lories of the Moluccas and New Guinea in being shy and wary in the natural state, morose and indocile in captivity.

The love-birds (Genus *Psittacula*) are the least of all parrots. Their tails are short and even, or slightly rounded. The species, several of which are well known among the ornithological adornments of our drawing-rooms, occur both in Africa and the East. It would give us pleasure to dilate upon their delicate beauty, but we have already far exceeded the limits assigned to us, and must now close our imperfect, if not brief, record of the *Psittacidæ*.

And, in concluding, we desire to ennoble our subject by reference to a noble writer, whose works, among their other infinite merits, tend to this great and good effect, that the more we read them the less we feel ourselves inclined ever to write again. In Mr. Ruskin's charming and most instructive work, the "Stones of Venice," we are told that there is no law in art more severely without exception than the connexion of pure colour with profound and noble thought. The late Flemish pictures, shallow in conception and obscene in subject, are always sober in colour; while the early religious painting of the Flemings is as brilliant in hue as it is holy in thought. The Bellinis, Francias, Peruginos, painted in crimson, blue, and gold; the Caraccis, Guidos, and Rembrandts, in brown and grey. The more faithful and earnest the religious feeling of the painter, the more pure and prevalent was his system of colour. It will even be found, that when colour has become a primal

intention with an artist otherwise mean or sensual, it instantly elevates him, and becomes the one sacred and saving element in his work. According to our author, the very depth of the stoop to which the Venetian painters and Rubens sometimes condescend, is a consequence of their confidence in the power of colour to keep them from falling. So surely as a painter is irreligious, thoughtless, or vile in disposition, so surely is his colouring cold, gloomy, and valueless.

"The opposite poles of art in this respect are Frà Angelico and Salvator Rosa, of whom the one was a man who smiled seldom, wept often, prayed constantly, and never harboured an impure thought. His pictures are simply so many pieces of jewellery, the colours of the draperies being perfectly pure, as various as those of a painted window, chastened only by paleness, and relieved upon a golden ground. Salvator was a dissipated jester and satirist, a man who spent his life in masking and revelry. But his pictures are full of horror, and their colour is for the most part gloomy grey."

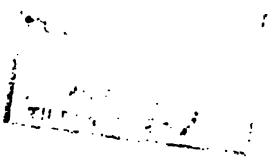
"Nor does it seem difficult," says Mr. Ruskin, "to discern a noble reason for this universal law. In that heavenly circle which binds the statutes of colour upon the front of the sky, when it became the sign of the covenant of peace, the pure hues of divided light were sanctified to the human heart for ever; nor this, it would seem, by mere arbitrary appointment, but in consequence of the foreordained and marvellous constitution of those hues into a sevenfold, or, more strictly still, a threefold order, typical of the Divine nature itself. Observe, also, the name Shem, or Splendour, given to that son of Noah in whom this covenant with mankind was to be fulfilled, and see how that name was justified by every one of the Asiatic races which descended from him. Not without meaning was the love of Israel to his chosen son expressed by the coat 'of many colours;' not without deep sense of the sacredness of that symbol of purity did the lost daughter of David tear it from her breast: 'With such robes were the king's daughters that were virgins apparelled.'* We know it to have been by Divine command that the Israelite, rescued from servitude, veiled the tabernacle with its rain of purple and scarlet, while the under sunshine flashed through the fall of the colour from its tenons

* 2 Samuel, xiii. 18.

of gold; but was it less by Divine guidance that the Mede, as he struggled out of anarchy, encompassed his king with the sevenfold burning of the battlements of Ecbatana?—of which one circle was golden like the sun, and another silver like the moon; and then came the great sacred chord of colour, blue, purple, and scarlet; and then a circle white, like the day, and another dark, like night; so that the city rose like a great mural rainbow, a sign of peace amidst the contending of lawless races, and guarded with colour and shadow that seemed to symbolise the great order which rules over Day, and Night, and Time—the first organisation of the mighty statutes,—the law of the Medes and Persians, that altereth not.

"Let us not dream that it is owing to the accidents of tradition or education that those races possess the supremacy over colour which has always been felt, though but lately acknowledged among men. However their dominion might be broken, their virtue extinguished, or their religion defiled, they retained alike the instinct and the power; the instinct which made even their idolatry more glorious than that of others, bursting forth in fire-worship from pyramid, cave, and mountain, taking the stars for the rulers of its fortune, and the sun for the god of its life; the power which so dazzled and subdued the rough Crusader into forgetfulness of sorrow and of shame, that Europe put on the splendour which she had learnt of the Saracen, as her sackcloth of mourning for what she suffered from his sword; the power which she confesses to this day, in the utmost thoughtlessness of her pride, or her beauty, as it treads the costly carpet, or veils itself with the variegated Cachemire, and in the emulation of the concourse of her workmen, who, but a few months back, perceived, or at least admitted, for the first time, the pre-eminence which has been determined from the birth of mankind, and on whose charter Nature herself has set a mysterious seal, granting to the Western races, descended from that son of Noah whose name was Extension, the treasures of the sullen rock, and stubborn ore, and gnarled forest, which were to accomplish their destiny across all distance of earth and depth of sea, while she matured the jewel in the sand, and rounded the pearl in the shell, to adorn the diadem of him whose name was Splendour."—Vol. ii. p. 146.

J. W.



Hippopotamus amphibius.

THE ZOOLOGY OF THE BIBLE.

No. I.

THE HIPPOPOTAMUS (*Hippopotamus amphibius*).

CLEAR as it now is to any one who reads the fortieth chapter of Job, with the hippopotamus before him, that behemoth is the creature so well depicted in verses 15–24, our ancestors were not so certain of it. The translators of the Bible in King James's time add the following marginal note to the word: "This beast is thought to bee the elephant, or some other which is unnowen;" while the sagacious and worthy Matthew Henry, in his commentary, notwithstanding the learning of Bochart, has the following note:—

"*Behemoth* signifies beasts in general, but must here be meant of some one particular species. Some understand it of the bull; others of an amphibious animal, well known (they say) in Egypt, called the river-horse (hippopotamus), living among the fish in the river Nile, but coming out to feed upon the earth. But I confess I see no reason to depart from the ancient and most generally received opinion, that it is the elephant that is here described, which is a very strong, stately creature, of very large stature, above any other, and of wonderful sagacity, and of so great a reputation in the animal kingdom, that among so many four-footed beasts as we have had the natural history of (ch. 38 and 39), we can scarcely suppose this should be omitted."

There were no museums or zoological gardens in Matthew Henry's days, and the hippopotamus was only known by rude engravings. Linnæus was quite satisfied that the hippopotamus is the creature to which the sacred writer refers. In the "Systema Naturæ" his concise description ends, "Behemot Jobi."

On the mosaic pavement at Præneste, in which so many of the animals and plants of Egypt and Ethiopia are figured, there is a passable representation of the creature among water plants,* about to plunge into the river; and a little behind, a very recognisable head, evidently drawn by the artist from the living animal, is represented projecting from the water, just over the back of a crocodile. The chase of the hippopotamus was a favourite sport in ancient Egypt. The mode of attacking and securing it, as represented on the sculptures of Thebes, appears to have been similar to that now followed in Sennaar; "where, like the ancient Egyptians, they prefer chasing it in the river, to an open attack on shore: and the modern Ethiopians are contented to frighten it from the corn-fields by the sound of drums and other noisy instruments. It was entangled by a running noose, at the extremity of a long rope wound upon a reel, at the same time that it was struck by a spear. This weapon consisted of a broad flat blade, furnished with a deep tooth or barb, at the side having a strong line of considerable length attached to its upper end, and running over the notched summit of a wooden shaft, which was inserted into the head or blade, like a common javelin. It was thrown in the same manner; but, on striking, the shaft fell, and the iron head alone remained in the body of the animal; which, on receiving a wound, plunged into deep water, the line having been immediately let out."† The attendants of a sportsman, when the creature was fatigued by exertion, dragged it to the boat, when it was again wounded and entangled by other nooses, till it was finally subdued,—a procedure somewhat reminding us of the capture of that behemoth of the Polar Sea, the whalebone whale. Some

* "He lieth—under the covert of the reed and fens. The willows of the brook compass him about."—Job, xl. 21, 22.

† *Wilkinson's* "Popular Account of the Ancient Egyptians," i. p. 239.

of the Roman emperors procured living specimens, and exhibited them at triumphal shows; and on some of their medals figures are given. That on a medal of the Emperor Philip, or rather of his queen Otacilla Severa, is a very striking likeness of a young, and perhaps hungry, hippopotamus, designed by some Wyon of the day. This is, perhaps, the earliest *good* figure of the creature; and its representation on such a place shows in what estimation, as a curiosity, it was held. The hint might be taken by sovereigns of the present day, when animals, difficult to be procured, are brought from remote parts of the world for the first time. George the Fourth's reign would then be known by the giraffe, and Queen Victoria's by the great ant-eater or the Egyptian hippopotamus.

At the present day the hippopotamus is exclusively an inhabitant of the rivers and lakes of Africa, where it is very generally distributed. Some naturalists believe that there are more species than one. Dr. Morton, in one of the American journals, lately described the hippopotamus of Liberia as distinct, and Dr. Falconer finds the characters, assigned to it, answer those of some of the extinct species which he found in India. But whether distinct or not, the hippopotamus from West Africa and East Africa seems to differ but little in habit from that of the Nile, except, perhaps, that it often visits the sea, which the other, owing to its distance and the extending civilisation, cannot do.

All travellers in Dongola and Abyssinia speak of the hippopotamus. Lefebvre* refers to its timidity and taking refuge in the water on hearing the least noise; and then it only shows its head at long intervals above the surface,

* *Voyage en Abyssinie*, 1839–1843, t. vi. p. 28.

when it comes up to breathe. When wounded, however, its natural timidity departs, and it rushes open-mouthed on its assailants. Dr. Rüppell and his party took four hours to kill a large specimen; and it was only after discharging five balls from a swivel, at the distance of a few feet from its head, that the colossal creature was killed.

On the Nile, about Meroe, Mr. Melly observed two floating unconcernedly along "with their immense mouths wide open, upright, pink inside, and very much resembling a mass of butcher's meat." About this part they are very numerous, and, during the night, often do great damage, trampling down whole fields of corn and beans. The natives hate them; and Mr. Melly informs us that, when his party was at Khartoum, in 1850,* the inhabitants of an island a little below Berber applied for troops to drive away these midnight revellers; and, accordingly, a hundred soldiers were despatched after them. When Burckhardt travelled in Nubia, he relates how dreadful a scourge the "Barnik" is in Dongola; but that, as the natives have not the means of destroying it, they have to put up with great damage to their crops.

The natives of the eastern parts of Africa have an ingenious mode of destroying these huge brutes by means of a trap, placed in the openings through which they are continually passing to and from the water. "This is formed by a young tree, about twenty feet high, placed perpendicularly with the sides of the passage; at the top is a weighty bough, in the lower end of which is fixed the iron head of an assagaye or spear; this is attached to the young tree by means of some climbing plant, to answer the purpose of a cord; and after being turned two or three times round (just enough to support it), is brought down to the ground, and carried horizontally across the animal's path, when, as he

* *Khartoum* and the Blue and White Niles, ii. p. 141.

never lifts his feet from the earth, he breaks the cord, and the bough, falling like a portcullis, drives the spear into his back; from this wound he bleeds profusely, and rushes with pain and fury to the water, where he shortly dies; his death sometimes hastened by the iron being poisoned." The body soon floats, and is towed ashore by the natives, who feast on the flesh, and obtain valuables in barter for the teeth.*

Laying aside its bulk, the hippopotamus has only to open his huge mouth,—that immense mouth which, in the scriptural language, "drinketh up a river,—he trusteth that he can draw up Jordan into his mouth,"—to terrify many of his enemies. One of the officers of H. M. ships Leven and Barracouta, who surveyed many parts of the African coast, so prolific in monsters, speaks of one opening its huge red mouth about three feet and a half, "when it exhibited a more formidable and savage appearance than I have ever witnessed in the fiercest of the brute creation." The hippopotami keep up a constant noise all the night which resembles "the grunting of a hog, joined to the loud, hollow bellowing of an ox and the neigh of a horse." When severely wounded, the sounds made by the poor creatures are most terrific and hideous.

During Capt. Owen's survey of the river Temby, an instance occurred where a boat was attacked by one of these beasts. "Lieutenant Vidal had just commenced ascending this stream in his boat, when suddenly a violent shock was felt from underneath, and in another moment a monstrous hippopotamus reared itself up from the water, and in a most ferocious and menacing attitude rushed open-mouthed at the boat, and with one grasp of its tremendous jaws seized and tore seven planks from her side; the creature disappeared for a few seconds and then rose again, apparently intending to renew the attack, but was fortunately deterred

* *Owen*, "Narrative of Voyages," i. 133.

by the contents of a musket discharged in its face. The boat rapidly filled, but, as she was not more than an oar's length from the shore, they succeeded in reaching it before she sank. Her keel, in all probability, touched the back of the animal, which irritating him, occasioned this furious attack, and had he got his upper jaw above the gunwale, the whole broadside must have been torn out. The force of the shock from beneath, previously to the attack, was so violent that her stern was almost lifted out of the water, when the midshipman steering was thrown overboard, but fortunately rescued before the irritated animal could seize him."

During the day it keeps much to the water, coming to the land at night to feed. It is upon the whole a quiet and inoffensive animal, though when wounded, or when surprised on land with its young, it is not slow to attack any one who attempts to interrupt it: ("he hasteth not.")

It is chiefly on grass that Dr. Smith found the hippopotamus to feed. "He eateth grass like an ox;" but in the selection of food the hippopotamus is very particular, as it often passes over luxuriant green swards which would attract other graminivorous quadrupeds. It prefers also vicinities where there is a considerable deal of brushwood. Mr. Salt describes the ease with which these animals drop to the bottom, and where the water was clear they could be distinctly seen as low as twenty feet below the surface. When seen in this way, the hippopotamus appears of a different colour from what he is when on land. Viewed through the deep water his tint is of a dark blue; on land, his colour is brownish black, well compared by Dr. Burchell to a light hue of Indian ink.

At the Cape Colony the flesh of the hippopotamus is considered a dainty. The layer of fat between the skin and the muscles is in especial request; and, in order to obtain a *preference in the* matter of this "speck," Cape Town epi-

cures do not disdain to use their influence with the country farmers. The foot and the tongue are also highly prized.

The incisor and canine teeth afford a valuable ivory, and the thick skin is cut into long stripes to make riding-whips or "sambucks," so much dreaded in the East by slaves and workmen.

The hippopotamus now in the Zoological Gardens was taken when a mere baby in the summer of 1849, on an island in the White Nile, eighteen hundred miles from Cairo. His mother, who had been mortally wounded by the hunters, was eagerly endeavouring to return to a clump of thick bushes on the margin of the river, which led to the spot being searched, and the present specimen being captured. The creature was then about the size of a new-born calf; and juvenile as he was, he attempted to rush to the river. The extreme lubricity of his skin enabled him to get out of the grasp of his pursuers, and it was only by a boat-hook struck into its flank that the slippery "pig" was at last secured.

From Alexandria he sailed to Southampton in the same ship with the Nepaulese ambassador in 1850. The milk of two cows and ten goats was entirely devoted to his support on the voyage, but it was not found sufficient. The milk was supplemented by Indian corn-meal, and on this he was nursed through the Mediterranean and Bay of Biscay, and on reaching the Gardens oatmeal was substituted for Indian corn; and the change, with an extra supply of milk, seemed to give the gigantic infant great satisfaction. By degrees, they substituted vegetable diet for the milk, and under this treatment he has thriven surprisingly. When he first arrived he weighed about half a ton; he has increased nearly a ton since that time. He is now fed on clover, hay, oats, beans mixed with turnips, and plenty of bran and clover chaff. He *also eats readily* mangel wurzel, and almost any

vegetable substance. At present his daily rations are eight quarts of ground oats, three quarts of split beans, and about a bushel of bran and some turnips, &c.

About the hour of dinner—four o'clock—our "fat friend" grows very fidgety, and displays a restless anxiety which strikes the spectator the more owing to the bulk of the creature. A dog, when eager for food, opens his mouth, and seems to lick with anticipation, and not unfrequently yawns and whines; but our readers can have no idea of the yawn of a hungry hippopotamus unless he has seen it, or of its cry of impatience, which it utters through its nostrils—a blast like the sound of two trumpets suddenly stifled,—an unmistakeable "dinner-bell." If we remember right, its mouth is figured in an old painting of the Last Judgment at Hampton Court, as the entrance of "the place of the wicked." The artist must have looked into the actual gape of a ravenous river-horse, otherwise he could not have imagined so striking a portal, with its four outstanding incisors. With all his impatience we were not a little pleased with the creature's docility the last time we looked at him. The keeper, who had some preparations to make, firmly told him, "I do not want you yet," and the hippopotamus "turning tail," quietly descended into the water, and veered round his island of a head, the protruding and somewhat melancholy eye constantly directed towards the feeding-place; but no sooner did he hear the retiring footsteps of his friend than out he waddled, and forthwith his immense sleek body was stationed at the trough,—a magnificent example of fore-shortening to the lookers-on.

He sleeps irregularly, sometimes three or four hours at a time, and sometimes all night through. With all his playfulness, for he is always ready for a romp with his keeper, concluding with a mighty plunge into the water, there is, *nevertheless, in* his countenance a disappointed and some-

what melancholy expression, as if he remembered his liberty, and longed for a nocturnal ramble in the society of his fellows. With his curious eyes he can see that the giraffes in the adjoining paddock are not solitary; and if hippopotami can reason, he may wonder why he, too, has not a thick-skinned companion of his own kind and species.

Dr. Smith well describes this massive creature, when he says that its entire contour "suggests to the observer the idea of a form intermediate between an over-grown pig and a high-fed bull, without horns and with cropped ears." The lips are very thick and bulging, the sides especially protrude, so that when the mouth is shut even the longest of the teeth are hid from view. The eyes are placed very high, a character, which, with the short ears, contributes much to give the hippopotamus its very peculiar physiognomy. It seems to have the power of protruding its eyes, and like the seals, it can completely close its nostrils when under water. Professor Owen* well remarks, that its "wide mouth is chiefly remarkable for the upward curve of its angles towards the eyes, which gives a quaintly comic expression to the massive countenance." Full-grown specimens are nearly twelve feet long, and almost five feet high at the shoulder; and some travellers describe them as attaining even a greater length than this. The legs are short and very thick, and the body so very thick and bulky that the middle of the belly almost touches the ground. The skeleton to support the flesh, skin, and intestines of such a creature, is well described in the words of Job, "His bones are as strong pieces of brass; his bones are like bars of iron." The great thickness of the skin, impenetrable at times even to a sabre-cut, seems alluded to in the words, "He that made him can make his sword to approach him." A. W.

* Annals of Natural History.

HOW THEY FOUND THEIR WAY TO WESTMINSTER ABBEY.

THERE is, probably, no cemetery in the world so impressive as Westminster Abbey. To compare it with our nearest and greatest neighbour: Père-la-Chaise contains a larger number of recent celebrities; but St. Denis is reserved for princes, and the Pantheon is empty. Here, however, the same roof covers kings and commoners, and sleeping monarchs are surrounded by the intellectual magnates of their realm; whilst through the strong and steady ages the links of glory go back unbroken to the Tudors and Plantagenets, and are hardly lost in the tomb of the Confessor.

It is almost a pity that the ordinary entrance is by the south-eastern transept. To most visitors Poets' Corner is more splendid than Henry the Seventh's Chapel, and more sacred than the shrine of St. Edward; and instead of being the vestibule, it ought to be the inmost *adytum*, where the tour of "all the glories" should terminate.

Such poets, too, as that Corner commemorates! It is only the land which claims Petrarca, Ariosto, Dante, and Tasso, which can name a quaternion like Chaucer, and Spenser, and Shakspeare, and Milton. And what a country is the land which produced them! Holland can work, and Germany can speculate; France can fight, and Italy can sing; but there is no Dutch Shakspeare, no German Newton, no Gallic Watt, no Tuscan Wellington. It is the favour of Providence, and it is the Anglo-Saxon felicity, that British mind is capable of such manifold development. And far from eclipsing their glory, it only renders more majestic the repose of bards like Chaucer and Spenser and Dryden that *they rest beneath* the same canopy with scholars and heroes

and statesmen like Casaubon and Heylin, William the Third and General Wolfe, Chatham and Canning and Wilberforce; for that honour is greatest which is rendered by greatness, and the value of a national monument depends on the worth of the nation which rears it.

The last minstrel whose monument has been erected in Poets' Corner is Robert Southey; the last whose coffin has been there deposited is Thomas Campbell. None, we think, will dispute the right of either to such a high distinction; but it is a question of some interest how they earned it. How came the sons of a Bristol tradesman and of a decayed Glasgow merchant to earn a niche in this mighty mausoleum?

It is easy to answer, They were poets. And with some it is a favourite theory that poets are born ready-made. Like meteorites, or like the image that fell down from Jupiter, they drop direct from the firmament, and some morning they "wake up and find themselves famous."

But, however well this theory may account for Homer and Shakspeare, and those others whose mental history is as obscure as their fame is transcendant, it is hardly borne out by modern and well-known instances. The adage "*Poeta nascitur, non fit,*" is only a half-truth. At least, in these latter days, a man must not only be born a poet, but he must make himself one to the bargain.

Of successful painstaking the world of letters furnishes few examples more encouraging than Southey. Doubtless he had an ear for rhythm and a turn for romance; but the wild wonder of "Kehama" and the music of "Thalaba" were not the creation of a summer's day. Even "Joan of Arc," the most crude of all his compositions, though written in six weeks, was not published till six months had been spent in its revision; and with all its ruggedness of language and its awkwardness *of structure*, its first edition is now mainly

valuable as an instructive example of the progress which genius is sure to make when discontented with its own performances and intent on the highest excellence. One great charm of Southey's poems is the dramatic interest of the story, to which full effect is given by the vivid clearness of the narrative. But even this constructive talent was the reward of infinite labour. Late in life he says, "The facility and pleasure with which I can plan a heroic poem, a drama, and a biographical or historical work, is even a temptation to me. It seems as if I caught the bearings at first sight: just as Telford sees from an eminence, with a glance, in what direction his road must be carried. But it was long before I acquired this power,—not fairly, indeed, till I was about five or six-and-thirty; and it was gained by practice, in the course of which I learnt to perceive wherein I was deficient."

In classic times and in our own earlier history, there was no distinction between the army and navy; but, when need required, the soldier became a fighting seaman. In the realms of scholarship, the division of labour still admits of an amphibious authorship; but the instances are not numerous where, like Octavius and Alfred, the hero has gathered laurels on either element. Perhaps it would be a better metaphor to say that the instances are few where the rider of Pegasus has dismounted and shown himself a nimble or graceful pedestrian. But Southey is one example. From verse he stooped to prose; and this last he wrote so well that Byron called it "perfect." It was at least so good that it added to his fame. There are stars so near to one another that it needs a telescope to perceive that there are two; and the two united make up a high magnitude, which neither, if separate, could have claimed. In the galaxy of authorship it may be that the laureate's "Portugal" is not the greatest of histories, nor "Madoc" the greatest of epics; but both are

so great that Southey the poet alongside of Southey the historian and essayist make up a first-rate man of letters. And, the converse of Campbell, the bard of Keswick is an instance where a reputation in prose has confirmed and perpetuated a poetical renown.

Here, too, we recognise the same admirable conscientiousness, — the same aspiring industry. To one whose daily bread was purchased by the pen, there was a terrible temptation to send forth his productions hasty and unfinished. But it was a temptation to which this true scholar was too chivalrous to yield: "I will review the books as soon as they arrive, and as well as I can; but I cannot do them better for an Edinburgh Review than for an Annual one. There are many articles which are valued precisely in proportion to the time and labour bestowed upon them, and which therefore can be accurately fixed accordingly; these articles are not of that description. The worst reviewals you have ever had from me cost me more time and labour than the best." So he wrote to a London publisher; and all his voluminous authorship attests how he viewed as a labour of love and a sacred trust each literary task. In the shape of a Memoir, never was "mosaic" more carefully pieced and more exquisitely put together than his Life and Letters of Cowper; and never was more self-denial shown in the use of materials, nor more skill in arranging the thrice-sifted selection, than in his peerless account of Lord Nelson. And so, forgiving some strong prejudices, but honouring the man who brought honour to the literary profession, England has enshrined among her worthies the name of Robert Southey.

As a poet, Thomas Campbell had the happiness to drink inspiration direct from Helicon; and his early and enthusiastic intimacy with the finest Greek models from the very outset *ennobled his style*, and whilst still under twenty

made his taste all but perfect. With a standard so severe, it was not possible to be profuse or prolific; but it was all the more certain that whatever passed the author's own ordeal would be such as the world does not willingly let perish. In publication almost as rare and as abstemious as his nearest British parallel, Gray, his exacting ideal and his exquisite finish have been similarly requited: for though "a little urn,"—a slender volume holds the reliques of each, so precious is every particle that the nation has hidden in its heart the whole. The most classical, and consequently the most fastidious and sparing of all our minstrels, the authors of "The Elegy" and of "The Pleasures of Hope," with their tortoise pace have outstripped all runners, and have reached the poet's proper goal, their country's memory.

Had "The Battle of the Baltic" appeared in the six-and-twenty stanzas through which the original composition straggled, it would have been read, approved, and forgotten. But by leaving out many noble lines,* and by inexorably compressing into eight verses all the rest, the poet has bequeathed to his country a song as deathless as England's navy. Indeed, in its symmetry and in the iron ringing energy of its successive broadsides, the ode reminds us not a little of twice

* For example, the following stanzas are omitted:—

"Not such a mind possess'd
England's tar;
'Twas the love of noble game
Set his oaken heart on flame;
For to him 'twas all the same
Sport and war.

"All hands and eyes on watch,
As they keep;
By their motion light as wings,
By each step that haughty springs,
You might know them for the kings
Of the deep."

four first-rates drawn up in battle array. And of all the passages in its author's biography, to us the most instructive is the secret history of this composition. "*Ex uno disce omnes.*" Many men possess genius who never acquire a sound literary taste; and not a few possess genius and taste united who are nevertheless spell-bound by indolence. But genius guided by exquisite judgment, and a reverence for the poet's art so great as to be unsparing of labour and ruthless of all retrenchment, conducted the Bard of Hope to his niche in Westminster Abbey.

THE VOLATILE TREASURE.

SUPPOSE that Time could be made a material commodity, palpable and solid—suppose that an angel brought you a bright little sphere, such as you could hold in the hollow of your hand, and he told you, "This contains the minutes and hours, the days and months, of an entire year. Through its dim translucency you can detect objects within, which you cannot clearly descry, and perhaps you would like to see these imbedded incidents brought out and realised. But be not impatient. They will come forth quickly enough. The commodity itself is more precious than any curiosity which it enshrines, and it is amazingly volatile. Every instant it is giving off particles into the viewless void, and on this day twelve months there won't be one atom left. God gives you a gift of priceless value. If you begin at once you may exchange it into some possession of great price. Before the year is ended, you may have learned some important language—you may have mastered a noble science. You may have gone through a course of reading

which will add a cubit to your intellectual stature. You may have completely broken off and overcome your present evil habit. Before that little mass of evanescent matter has melted into air, you may, with God's blessing, be as far in advance on your present self as your gainliest or most gifted friend is in advance of you. Take it, and remember that this instant it represents a year. See into what all you can exchange it:" Would you not receive with trembling such a gift? Would you not grow nervous to think that whilst so invaluable it was yet so evanescent? As soon as you had decided on the best investment for it, would you not repine at every incident which threatened to reduce your capital? Would you not be angry at the robber who ran away with a great lump of it? and would you not almost grudge to sleep, knowing that whilst your eyes were closed, the concentrated vapour would still be vanishing away?

Yet, reader, this is no bad emblem. Days perish whilst we are only planning; we are dying whilst we dream. A twelfth part of its entire amount has already melted off from the new year, which God so lately gave us; and that we may not lose the whole, we would offer a few rapid hints on the husbandry of time.

Assuming that the right improvement of days and years is to grow wiser and better ourselves, and to help to make others better and wiser, perhaps we should, first of all, mention a few things which are not a waste of time.

The time is not wasted which is spent in needful rest and recreation. Man is a machine most admirably constructed by his Maker, and warranted to go well for many years if a few directions are attended to. One condition is that it be temperate in eating and drinking. Another is that it shall rest one day in seven; another is that it shall sleep sufficiently. Accordingly, by way of saving time, in order to lengthen life, and in order to do with all your force

and vigour whatever comes to hand—you rest; you sleep; you keep the Sabbath; you enjoy your occasional holiday: that is, you give a little time in order to get a great deal more.

The time is not wasted which is devoted to friendly intercourse, and to the fostering of right feelings and affections. One man is seized by the mania of study; another is possessed by the passion of money-making; and each frets himself into his own peculiar frenzy. Each comes to feel that the chiefest good is wealth or knowledge, and that everything which cannot be converted into a fact or a sixpence is an impertinence which merits no attention, or an interruption which ought to be resented. But there are things more precious than silver or science. You man of business, you have got at home what gold will never buy. An hour spent with your children, or with a wife truly Christian and feminine, will do more to make your heart better than a month in the Bank or the Board-room. Grudge not the moments which long hereafter will, on one side or other, return in hallowed memories, and which, if well invested, may even become a treasure in heaven. You scholar, deep in that contracted Greek Father, and rummaging for various readings as if a creed or a kingdom were involved, a friend is sick, and he has no one to tend him. Do you go. Yes, put down the folio for the present. Make up your mind to a fortnight's fast, during which you shall neither touch, taste, nor handle Origen or Clemens Alexandrinus. The time won't be lost. You are only exchanging one study for another; and the lesson of tenderness and self-denial you are about to learn, you never would have acquired though you had pored over these old scrolls till you yourself were parchment.

But time is wasted if spent in doing nothing:—such time as many dissipate in frivolous talk;—such time as many

spend in plausible illusions, and waking visions, planning a life of goodness which they never begin, and feats of heroic exertion which they will not so much as touch with one of their fingers.

The time is wasted which is spent in doing things by halves. The world is full of towers which "men began to build and were not able to finish." The smallest cabin roofed in and finished is worth a hundred such Babels; and unless the idea be so good, that some steadier mind takes it up and completes it, the architect of a poor man's cottage lives to better purpose than the mere projector of a triumphal arch or a national monument.

The time is wasted which is spent in habitual story-reading. Because he has a book in his hand, a man is apt to think that therefore he is not idle. But what are you reading?—A tale. And what was the last book you read?—A novel. And the book before that?—A historical romance. And why do you read them? Is it for the useful lessons — the fine sentiments — the historical facts? Or, are not these the things you least care for, and which you are most apt to skip over? And were we to give you a book which contains as many fine sentiments, and useful lessons, and important facts, as any thousand of your favourite fictions, would you promise to read it? Are you sure that this daily dram-drinking is not hurting your mind? Is it not creating a nausea for wholesome intellectual food? Is it not sending leanness into your soul, and giving you a distaste for the Bible? By inflaming your fancy, is it not spoiling your temper; and by making you the denizen of a hundred fantastic and fairy worlds, is it not robbing the actual, every-day world of an amiable and useful citizen? Already have you not reached the brink of confirmed intemperance? Is there no craving? no crying, Give, give? no glistening of the eye as the wine gives its colour in the cup? no gloating

over the badge and cognisance which marks the new *brochure?* Might it not make you a stronger man, a healthier soul, if you tried one year of total abstinence?

But we hasten to mention how time may be well bestowed. And here we begin with saying that no time is so well employed as that which is spent in deliberate devotion. To acquaint ourselves with God, and to get true and scriptural views of His perfections; to acquire the right affection towards Him; to grow in faith and submission, in cheerfulness and thankfulness; in love to Jesus Christ, and in longing for the world's salvation: this is piety, and proficiency in this would be incomparably the best and most blessed progress throughout the remaining year. We say deliberate devotion; meaning thereby the deliberateness of one who in prayer seeks communion with God, and who considers what the mercies are which he ought to ask from his Father in heaven. You may possibly remember some occasion when, hastening off to your daily employment, in the hurry you forgot some essential document or implement; and for the want of it half the day's object was defeated; and, reminded of the want not once, but many times, you said, "I might as lief have stayed at home. Here is a day of fatigue and exertion entirely lost." And so we cry, "Stay; stop a moment! You who are rushing out to your daily avocations prayerless, how do you expect to prosper?" "I have said my prayers." Yes; but what did you pray for? Did you ask God to be your present help all day? Did you say that you would rely on His gracious aid to preserve your temper; to sustain you in truth and uprightness; to give strength to your arm, soundness to your judgment, serenity to your spirit, and prosperity to the work of your hands? For with His presence unbespoken you go out into the day bereft of its most essential provision; and just as there is an unproductive precipitancy which outruns

God's Word and Providence, so will you find that to wait on the Lord is always a wise delay, and that calm devotion is a true economy of time.

The time is well spent which, when actually engaged in your calling, is given to its thorough discharge. "Seest thou a man diligent in his business? He shall stand before kings, he shall not stand before mean men." Assiduity and energy in a man's proper employment are essential to mental health and a right social standing; and whether he be a principal or a subaltern, a servant of his country or a trader toiling on his own account, the conscience cannot be clear nor the spirit strong if official duties are slurred carelessly over. The young shopkeeper will teach his Sunday scholars all the better if he comes to them from a week of honest, cheerful industry; and in society, the government clerk, who makes a conscience of his duties, will move about a man of weight and worth, whilst his neighbour at the desk, who dawdles over plays and newspapers, is sure to take his proper rank as a trifler or a bore, a butt or a buffoon. Exemplariness in our appointed station is the pedestal on which Providence designs that each man's character shall stand; and no social charms, no civic patriotism, no service in public committees, can earn for the lounging trader or the bungling craftsman the homage of a profound and permanent esteem.

The time is well spent which is devoted to some solid acquirement. In the last year's Report of the Manchester Free Library, it was interesting to find how the longest histories and the most massive works had been grappled by herculean readers among the labouring classes, who had perused them from beginning to end. And so amongst our own readers we venture to say that there are few who, even in the year's remaining months, might not master a modern language, or learn to read the Greek or Hebrew Testament; or, if they preferred turning to account the languages which

they already know, they might obtain such insight to chemistry, or astronomy, or optics, or some one of the real sciences, as would shed over the Creator's works a light of unsuspected loveliness, and fill their own minds with a fund of lasting enjoyment. Or, if even this were deemed too formidable, these eleven months would suffice for perusing and for preserving in its abstracted essence some great master-piece,— a history, a commentary, a system of divinity,— some work which, carefully conned, would add to the student a life-long staple of conviction and knowledge.

But even better than this last is the time expended on some benevolent undertaking. And who need be at a loss for a labour of love? Not the merchant, whose counting-room or warehouse is full of young men, brought together from all corners of the kingdom, and who, a few years hereafter, may be a blessing or a bane at the farthest ends of the earth. Not "the little maid," who has charge of these children, and whose gentle goodness may guide them to the open arms of the holy and loving Saviour. Not the scholar, who, by popular lectures, may quicken the mind of a drowsy village, or who, by attractive Christian instruction, may purify the tastes and reform the habits of a vicious one. Not the errand-boy, who may teach his letters to the boy who sweeps the crossing, and so put in the way of well-doing a little British brother. Not the lady of the manor, whose gracious influence can convert hovels into homes; and who, in the industrial school and the brightened cottages and the smiling gardens, can multiply her own benignant presence through all the peaceful hamlet. Not the older sister, who to the rest can impart the lesson for which her parents have paid full dear, and who, in transmitting the costly attainment, will perfect her own proficiency, and who, whilst thus acquiring an art which masters cannot teach, will enjoy a pleasure which self-indulgence never knows.

REVIEW OF THE MONTH.

To begin, as Englishmen ought, with the weather: the year commenced most seasonably. Boreas shook hands with old-fashioned energy, and provided for his island subjects out-door amusements on a scale of unwonted profusion. What with sledging and skating, avalanches from the roofs and snow-battles, bursting water-pipes and storm-staid omnibuses, and the comical expedients called forth by the unusual emergency, aided by the exhilarating influence of the crisp, keen atmosphere, for the few days during which it lasted it was quite a merry masquerade.

From the 2d to the 5th of January, there fell in the Midland Counties as much snow as would have measured twenty-one inches, had there been no drift. Early on the morning of the 3d, the thermometer descended to — 3° at Melton Mowbray, and — 4° at Nottingham. At Bury, in Suffolk, it fell as low as — 7°, Jan. 9, 1841; which is probably the lowest temperature authenticated since the commencement of the present century. If our memory serves us right, it was noted as high as 96° in Buckinghamshire in July 1826, and was probably as high in 1852: so that our English temperature has an extreme range of more than a hundred degrees; although the ordinary annual extremes are little more than sixty degrees apart.

But the year opens solemnly. Already the forty years' peace is virtually terminated; and, before the ensuing summer is far advanced, it is too likely that the fields of Europe shall have witnessed some scenes of fearful carnage. In the present state of Continental thrones, the possible embroilments of a general warfare are beyond the calculation of

political sagacity; but, meanwhile, it is a happy earnest for the cause of European civilisation that France and England have united to arrest the progress of the great Northern glacier, which has already ploughed down the liberties and frozen up the happiness of many a goodly land.

The *Himalaya*, which sailed from Southampton for Alexandria on the 20th of January, is the largest ocean steamer afloat. Her length is 372 feet 9 inches, and her tons register are 3550, being equal to 4000 tons burden. The *Great Britain* is only 332 feet long, and the American clipper-ship, *Great Republic*, destroyed by fire a few weeks ago at New York, was only 325 feet in length: whilst the only ship which surpasses the *Himalaya* in capacity is the *Duke of Wellington*, man-of-war, of 3760 tons register.

A remarkably interesting document has just appeared. It is the Statistics of Religious Worship in England and Wales, as brought out in the census of 1851, compiled with admirable care and intelligence by Mr. Horace Mann. Out of a population of 17,927,609, it was ascertained that on the Lord's day, March 30, 1851, there attended public worship:

In the morning	4,647,482
In the afternoon	3,184,135
In the evening	3,064,449

Making a total number of 10,896,066 attendances. But the melancholy fact brought out by this inquiry is, that as many as 5,288,294 persons able to attend public worship are every Sunday absent from religious services. In London it was calculated that on the day in question, out of a population of 2,362,236, there were 504,914 attendants at religious worship, of whom 276,885 were members of the Church of England.

Sir R. H. Inglis has retired from the representation of the University of Oxford. A staunch Protestant, a zealous

opponent of the slave-trade, and the hearty supporter of many institutions scientific and Christian, the venerable baronet carries into private life a reputation of untarnished purity, and the respect of all who love the independent and high-minded English gentleman.

On the 27th of December, came to a close the patriarchal career of the Rev. William Jay of Bath. He was born on the same day with the Duke of Wellington, May 1, 1769, and as he began to preach when he was only sixteen, his ministry extended to nearly seventy years. It is not very long since we heard him with wonder and delight; and in our own, as in myriads of memories, is still depicted that countenance whose sunshine furnished its own photograph: so wise and so witty, so wrinkled yet so radiant, with so much of youthful ardour welling up in the fountains of those deep-fringed softly-burning eyes, and with words so tender and so holy dropping from lips in whose corners lurked all that was quaint or caustic,—whilst, like an oak-thicket on an old rampart's summit, that strong visage and firm brow rose and were lost in the shaggy wilderness which covered all with its copsy crown. His ministry has helped to teach us the boundlessness of the Bible and the grandeur of good sense. Quarrying every day in that vein of Scriptural exposition which he first opened far back in the former century, this industrious miner found new treasures to the last; and without poetry, without declamation, without much scholarship, but sincere, natural, truthful, — Saxon, and still more Christian, — wise enough to forbear efforts for which he felt no fitness, but within his own province striving to do his best, none ever heard a sermon of his and pronounced it a failure. Plain enough for the poorest, and with a vigour which commanded the strongest, that long and consistent ministry was spent in opening up the Scriptures, in commending the *Saviour, and in* declaring the whole counsel of God.

Amongst the month's publications we give a special welcome to "Business: as it is, and as it might be," the essay for which Mr. Lyndall gained the prize of the Young Men's Christian Association. We trust that it will powerfully aid the object of the Society which called it forth, whilst the appearance from the pen of a young man of a work so vigorous, so well informed, and so healthful in its tone, is a virtual plea for the "Early Closing" movement of a sister society. With unusual delight we have perused "Theodoxia: or Glory to God an Evidence for the Truth of Christianity," by the Rev. J. B. Dickson. If the argument be not entirely new, it has never been presented in a form at once so systematic and so popular. Prefixed to his "Legendary and Poetical Remains" is a sketch of the life of the late Mr. Roby, of Lancashire,—a name well known to the lovers of popular antiquities, and whose history is a cheering example of the good which may be done and the happiness which may be diffused by a man of business who is withal a man of piety and culture. In companion volumes, "Memorable Women," by Mrs. N. Crosland, and "Footprints of Famous Men," by Mr. J. G. Edgar, we have at once biography made easy and example made instructive. Sir Gardner Wilkinson, in "A Popular Account of the Ancient Egyptians," has published the essence of his many magnificent volumes. Mr. Edward Thornton has completed the first two of seven intended volumes of a "Gazetteer of India,"—a work of amazing industry, and which, in conjunction with his "History of British India," will render the name of its accomplished author the highest literary authority on all that concerns our Eastern possessions. Remembering the pleasure with which we read "The Roman" four years ago, we sent for its successor, "Balder;" but we confess to a grievous disappointment. On the principle on which the Spaniard put on his spectacles when he ate cherries, in order that they

might look as large as possible, so a late laureate put them on in reading poetry. But it is not spectacles so much as nut-crackers which "Balder" requires. It is a feast of cherry-stones, and the hardness of the shell is not compensated by the size of the kernel.

Notwithstanding the avidity with which we always pounce on new books, we are not sure but that our greatest pleasure this season has been the reappearance of an ancient friend. Never was the English language more deliciously written than by that gifted simpleton whose wit was more than Irish and his folly more than human. Had he only imbibed the shrewdness and the fun which flowed from his own goose-quill, Goldsmith should have been the merriest, and almost the wisest man of his contemporaries; but it would seem that poor Oliver, like many a brother author, was only a "medium." Still, thanks to his genial memory none the less: thanks for "animating" Nature in our boyhood, and thanks for the one school-book which it was a treat to study. And now thanks to the editor and publisher for an issue of these "Golden Reliques," which it is a luxury to look upon. Strange as it may appear, this is the first collection of Goldsmith's works in which pains has been taken to reprint his pieces as they appeared with his own final corrections; nor has any previous edition contained his Letters. The present series will also be enriched by a long poem hitherto unpublished; and with an editor so industrious and so well informed as Mr. Cunningham, and with its many charms of exterior, and above all, with its charming cheapness, we are glad to think that the first volume of the British Classics reopens and adorns this "well of English undefiled."

LIFE, IN ITS LOWER FORMS.

No. II.

PORIFERA. (*Sponges.*)

WHAT is an animal? Nothing seems easier than to answer this question. Our thoughts in a moment recall the image of the stately horse shaking his neck of thunder, and projecting columns of vapour through his translucent nostrils; or the painted tiger crouching in the jungle, awaiting in lithe readiness the approach of some unconscious antelope to make his mortal spring; or the trembling antelope itself, as it pants, and struggles, and groans beneath the fangs of its merciless foe. Nothing appears simpler than to define an animal. A being with head, and body, and limbs; full of energy and vigour; possessed of various instincts; master of many ingenious contrivances all helpful to its peculiar economy; executing various movements; manifesting intelligence in different degrees, and governed by a wayward will.

True, such a creature as this is an animal; but are there no animals but such as possess these characteristics? Let us enumerate a few familiar instances. Look at the ferocious crocodile. Is this an animal? "Without doubt," you answer. The serpent, the frog, the mackerel? "Without doubt," you still reply. The worm, the caterpillar, the snail, the oyster? "Yes," you say still, perhaps hesitating a little upon the last, as its energy and vivacity are confessedly not great. Still, probably, you have been accustomed to consider an oyster as an animal, though one in which the animal life is in about its lowest condition; and

you think you have got through your catechism without any great difficulty. Stay: we must ask you to descend with us a step or two lower than the oyster. You have, perhaps, seen on the sandy shore in summer the flat cakes of motionless, colourless jelly, commonly called sea-blubber: are these animals? If you have seen them in the sea, possibly you will consider the spasmodic contraction of the circular disk at regular periods as an indication of life, though you begin to see that in such a mass of clear jelly as this, without limbs, without organs, without senses, without intelligence, without a power of governing its movements, we have departed somewhat considerably from such a standard of animal nature as the horse or the tiger presented.

But let us look farther yet. The brilliant-hued sea anemone that adheres to the rock, and expands its lovely fringed disk like the blossom of a flower,—what is this? People call it an animal-flower; but what is it, animal or flower? Probably you are at last puzzled; you are inclined to think it a sort of marine flower, though its fleshy substance, and its shrinking when touched, produce some misgivings in your decision. Well, try again. In the baskets of dried sea-weed which are exposed for sale in watering-places, you have often seen the papery leaves of pale-brown hue, or feathery plumes of pure white, mingled with the crimson and green specimens. You have never doubted that these are all sea-weeds, that is plants, alike. And yet if you saw these growing on their native rocks, plant-like as they are in form, you might discern, on careful examination with a pocket lens, that from various points of their surface tiny star-like circles of radiating points were protruding, that possessed spontaneous motions, and exhibited a shrinking sensitiveness to danger, and a power of seizing and swallowing food; and you would suspend, if not alter, your *judgment.*

If now we ask, What is an animal? you will confess that the answer is not so easy as it appeared at first; still there remain some characters common to all the beings that we have glanced at, and these we may perhaps conclude to be inseparable from, and distinctive of, animal existence. Of these characters, the most constant and the best defined are the power of spontaneous motion, and the possession of a stomach, or at least an inclosed cavity, in which other substances are converted into nutriment.

With regard to the former of these characters, what shall we say to the Sensitive plants of the tropics, the pinnate leaflets of which fold together, and the jointed leaf-ribs fall, on the rude touch of a foreign body? What to the plant called Venus' Fly-trap (*Dionœa muscipula*), found in the marshes of North America, whose broad two-lobed leaves, armed with strong teeth standing up from the surface, ordinarily lie widely expanded; but when an insect touches their hairy centres, instantly fly up like a rat-gin, the teeth cross each other, and the offending fly is pierced, and held a prisoner until it dies? What to the Gorachand of Bengal (*Hedysarum gyrans*), whose actions, still more unaccountable than those just noticed, are thus described by the younger Linnæus? "No sooner had the plants raised from seed acquired their ternate leaves, than they began to be in motion in every direction: this movement did not cease during the whole course of their vegetation, nor were they observant of any time, order, or direction: one leaflet frequently revolved, while the other on the same petiole was quiescent; sometimes a few leaflets only were in motion, then almost all of them would be in movement at once; the whole plant was very seldom agitated, and that only during the first year." These motions, which are little dancings or startings to and fro, are much more lively in the native country of the plant than in our best stoves. What is

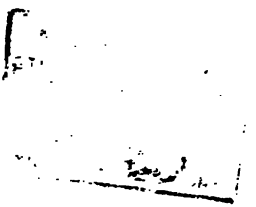
curious is, that if the leaflets be held between the fingers for a short time, and thus prevented from moving, immediately on their release they dance with renewed rapidity, as if to make up for the lost time.

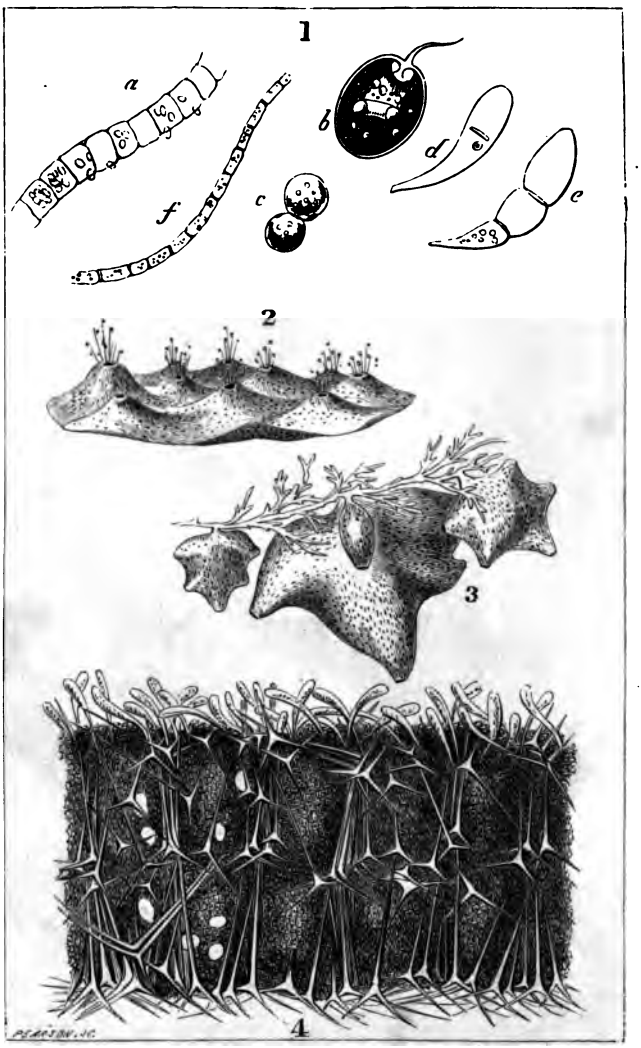
All these, however, are examples of motions *in the organs* of plants; but there are not wanting instances of spontaneous locomotion. The *Oscillatoriæ*, a tribe of minute plants among the *Confervæ*, derive their name from the spontaneous movements which they display. They oscillate to the right and left, and shift their position with considerable rapidity, often travelling ten times their own length in a few hours, and that when every precaution has been taken to prevent agitation of the water in which they grow, and to exclude the influence of external agents. The motion of these vegetable tubes has a writhing, twisting, undulating, creeping character; almost identical with that of animal movement.

The necessity of a stomachal cavity to an animal is a more precise distinction, and appears to be the only one. Yet even this is not without obscurity. The *Hydra*, when turned inside out, like a glove, absorbs its nutriment as well as before, though the surface which is its stomach now was before external, and *vice versâ*. And Dr. Lindley remarks, in speaking of vegetable organisms, "that it is impossible to say that the whole interior of a living independent cell is not a stomach."

It will now be readily admitted that the limits between the animal and vegetable kingdoms are exceedingly indistinct and subtile, and that these two grand divisions of organised being merge into each other by shadowy and almost imperceptible gradations. In fact, it is more than doubtful whether there are any boundaries at all.

In the preceding paper we described beings of excessive *minute*ness, but of energetic motions, most of which have





Pl. II.

Porifera. (Sponges.)

been universally allowed to be animals; yet a considerable number of those which were included by the illustrious Ehrenberg in the same class, are now pretty generally considered to be plants, in spite of their movements, and constitute the order *Diatomaceæ*. But what is stranger still is, that there are some forms which are animals at one period of their lives and plants at another! The Green Microglene (*Microglena monadina*), a beautiful oval monad not uncommon in our ditches, is declared by Kützing to be produced from a threadlike plant, which he names *Ulothrix zonata*. From the cells of which the thread is made up, the minute vegeto-animals are discharged in numbers (See Plate II. Fig. 1, *a*), and assume the form of an oval green monad, with a red eye-speck, a transparent colourless mouth, and a delicate proboscis or cilium (*b*). They swim energetically, with a vibratory rotation on the long axis, increase by self-division (*c*), and at length, by transverse constriction and elongation (*d*), grow into jointed vegetable threads (*e*), the lowest joint still retaining the eye-speck.

This interesting phenomenon, the reality of which has been ascertained by Kützing beyond all possibility of doubt, dissipates the idea of any supposed line of demarcation between the organic kingdoms of nature; and proves that the disputes which have been so pertinaciously maintained between zoologists and botanists on their boundary question, have been concerning words rather than things.

Among the organisms the position of which has been most debated are some very familiar to us, from our habitual employment of some of the species for domestic purposes. They constitute the extensive and widely-distributed class *Porifera*, or the Sponges, the history of which forms the subject of this paper. We shall not enumerate the names or record the opinions of the controversialists who have contended for scientific dominion over these bodies; naturalists

of the highest eminence have been arrayed on each side. We shall content ourselves with giving the judgment of Dr. Johnston, the learned historian of British Sponges, and one well worthy of being listened to with respect; and we quote him the rather because his decisions, while they tersely exhibit the real merits of the case, have so yielded to accumulated evidence as to shift from the side first advocated to the opposite.

When the "History of the British Zoophytes" was published, the author omitted the Sponges, and gave the following summary of his reasons for so doing: "If they are not the productions of Polypes, the zoologist who retains them in his province must contend that they are, individually, animals; an opinion to which I cannot assent, seeing that they have no animal structure or individual organs, and exhibit no one function usually supposed to be characteristic of the animal kingdom. Like vegetables, they are permanently fixed; like vegetables, they are non-irritable; their movements, like those of vegetables, are extrinsical and involuntary; their nutriment is elaborated in no appropriated digestive sac; and, like cryptogamous vegetables, or algæ, they usually grow and ramify in forms determined by local circumstances; and if they present some peculiarities in the mode of the imbibition of their food and in their secretions, yet even in these they evince a nearer affinity to plants than any animal whatever."*

A few years later, however, the learned writer published his "History of British Sponges," in the Introduction to which he elaborately examines the whole question, concluding with the following verdict: "Few, on examining the green *Spongilla*, would hesitate to pronounce it a vegetable, a conclusion which the exacter examination of the naturalist seems to have proved to be correct; and when we

* Brit. Zooph. p. 29.

pass on from it to an examination of the calcareous and siliceous marine genera, the impression is not so much weakened but that we can still say with Professor Owen, 'that if a line could be drawn between the animal and vegetable kingdoms, the Sponges should be placed upon the vegetable side of that line.' We shall possibly, however, arrive at an opposite conclusion if, proceeding in our inquiry, we follow the siliceous species, insensibly gliding, on the one hand, into the fibro-corneous sponge, filled with its mucilaginous fishy slime, and, on the other, into the fleshy *Tethya*, in whose *oscula* the first signs of an obscure irritability show themselves. Sponges, therefore, appear to be true zoophytes; and it imparts additional interest to their study to consider them, as they probably are, the first matrix and cradle of organic life, and exhibiting before us the lowest organisations compatible with its existence." *

Many of our readers are probably cognisant of only one kind of Sponge,—the soft, plump, woolly, pale-brown article, so indispensable in our dressing-rooms; or, at the most, two, if they chance to have noticed the large-pored, coarser sort with which grooms wash carriages. It may surprise such persons to be informed that the streams and shores of the British Isles produce upwards of sixty distinct species of Sponge; and that every coast, especially in the tropical seas, where they are very numerous and varied, has species peculiar to itself.

A Sponge, as it is used in domestic economy, is merely a skeleton; it is the solid frame-work which in life supported the softer flesh. This skeleton is composed of one of the following substances, — flint, lime, or a peculiar horny matter. The first two are crystallised, and take the appearance of spicular needles either simple or compound, varying greatly as to their length, thickness, shape, and curvature, but con-

* Brit. Spong. p. 68.

stant in form in the same species. The horny matter, of which the common domestic Sponge affords an example, is arranged in slender, elastic, translucent, tough, solid fibres, united to each other irregularly at various points, and in every direction, and thus forming an open netted mass commensurate with the size of the whole Sponge. The horny Sponges are almost confined to the warmer seas, but the siliceous and calcareous kinds are common with us, especially the former.

The solid parts are, during life, invested with a glairy transparent slime, so fluid in most species as to run off when the Sponge is taken out of its native element; yet this clear slime is the flesh of the animal.

The spicula, whether of flint or lime, or the horny fibres, are so arranged as to form numberless pores, with which the whole animal is perforated; it is to these that our common Sponge owes its most valuable property of imbibing and retaining water, as we shall presently see when we investigate the history of this species in detail. In life the surrounding water is made to flow through these pores by a continual current (interrupted, however, at the will of the animal) from without into the interior of the body. But whither goes this current? The pores lead into large channels, which also run through the body, like the drains from individual houses, which run into the main sewers; and these open on the exterior of the body, by more or less conspicuous orifices called *oscula*, or mouths. From these latter the effete water is poured in forcible streams, and thus a circulating current is maintained.

It was Dr. Grant who first established the fact of this current from personal observation. His account of the discovery is full of interest. "I put a small branch," he observes, "of the *Spongia coalita*, with some sea-water, into a watch-glass, under the microscope, and, on moving the

watch-glass so as to bring one of the apertures on the side of the Sponge fully into view, I beheld, for the first time, the splendid spectacle of this living fountain vomiting forth from a circular cavity an impetuous torrent of liquid matter, and hurling along, in rapid succession, opaque masses, which it strewed everywhere around. The beauty and novelty of such a scene in the animal kingdom long arrested my attention; but after twenty-five minutes of constant observation I was obliged to withdraw my eye, from fatigue, without having seen the torrent for one instant change its direction, or diminish in the slightest degree the rapidity of its course. I continued to watch the same orifice, at short intervals, for five hours,—sometimes observing it for a quarter of an hour at a time,—but still the stream rolled on with a constant and equal velocity." The vehemence of the current then began to diminish, and in about an hour ceased.*

No one can have looked with any attention at the rocks on any part of our shores that are left exposed by the sea at low spring-tide, without noticing irregular masses of yellow fleshy substance incrusting them, which rise into little conical hillocks perforated at the extremity, like the crater-cones of tiny volcanoes. This is the Crumb-of-bread Sponge (*Halichondria panicea*), one of our most common species; and it is peculiarly suitable for displaying the currents of which we have been speaking (see Fig. 2). Dr. Grant remarks that it presents the strongest current which he had seen. "Two entire round portions of this sponge," he says, "were placed together in a glass of sea-water, with their orifices opposite to each other at the distance of two inches; they appeared to the naked eye like two living batteries, and soon covered each other with feculent matter. I placed one of them in a shallow vessel, and just covered its surface and highest orifice with water. On strewing some

* Edin. Phil. Journ. xiii. 102.

powdered chalk on the surface of the water, the currents were visible at a great distance; and on placing some small pieces of cork or of dry paper over the apertures, I could perceive them moving by the force of the current, at the distance of ten feet from the table on which the specimen rested.*

The publication of these facts convinced naturalists that the gelatinous flesh of the Sponge exerted some vigorous action by which the currents were maintained, and cilia were suspected to be the organs. But the closest scrutiny failed to detect them, until first Dr. Dobie, and then Mr. Bowerbank, succeeded in seeing them in action in a living native Sponge. In similar situations to those where the Crumb-of-bread Sponge occurs, may be found, but much more rarely, the elegant Sack Sponge (*Grantia compressa*). It takes the form of a little flattened bag of angular outline, and of a whitish hue, with an orifice at each angle. The bags, which are frequently clustered, hang by a slender base from the stalks of sea-weeds, or from the naked rocks (Fig. 3). When examined they are found to be hollow, with thin walls; and if a small portion be torn off, and placed beneath a microscope, it will exhibit well the structure of a spicular Sponge. The substance will appear crowded, and almost composed, of calcareous crystals, most of which are stars of three radiating points, but some are linear needles, and on the exterior are many which are pointed at one end, and terminate in a bent, club-like knob at the other.

It was this species which, under Mr. Bowerbank's experienced eye and delicate manipulation, revealed the moving cilia. By *tearing* specimens in pieces (for the use of the keenest cutting instruments so crushed the texture as to destroy the parts), and examining the separated edges with high powers, he found that the sides are composed of a

* Edin. Phil. Journ. xiii. 104.

number of hexagonal cells, defined by the peculiar arrangement of the triradiate spicula, and having their walls formed by a multitude of nucleated granules (Fig. 4). These angular cells are laid at right angles to the long axis of the Sponge, extending from the outer surface to the inner; and they are crossed, near the middle, by a thin partition, perforated in the centre. In this perforation, several long, whip-like cilia were seen lashing with energy, and the same organs were afterwards found to be connected with the granules of which the cell-walls were composed. By means of the wavings of these cilia, then, the water is made to flow through the cells from without, being discharged into the interior of the sack, and poured out in streams from the orifices (*oscula*) which terminate the angles of the Sponge.*

This beautiful and interesting discovery leaves no doubt of the animal nature of the Sponges.

In our next paper we propose to examine in detail the economy, uses, and history of our Officinal Sponge, with some further interesting particulars common to the whole class.

P. H. G.

* Trans. Micr. Soc. iii. 137.

NIAGARA.

EVERY good Mussulman considers it a duty to perform, once in his life, a pilgrimage to the shrine of his Prophet at Mecca; and every American endeavours to make at least one visit to the Falls of Niagara. But the most devout Osmanlee that prostrates himself before the tomb of Mahomet can feel no access of fervour that will compare with the sensations inspired, even in a mind and heart of ordinary sensibility, by the sight of this sublime cataract,—the wonder of the Atlantic world,—the glorious temple not made with hands, where the incense of nature rises for ever towards Nature's God, as the compressed waters of one vast inland sea pour down into another.

On arriving at Niagara, my young companion and myself, notwithstanding our impatience, had sufficient self-command to resolve on economising our enjoyment, or, rather, lengthening it out, in seeing Niagara by degrees; reserving for the last the grand view that comprises the whole of the Falls at once. We found that we were right, and that the sum of our delight was greater in consequence.

They commence very gradually, where the bottom of the river first becomes slightly rocky. A few bells of white foam are scattered far apart on the surface of the dark green water, the current seeming to increase in velocity. As it proceeds, the foam-specks become larger and closer till they run into long wreaths. Then these wreaths unite, and become ridges; and the ridges follow each other so closely, that they blend together into high wide crests of foam that stretch from shore to shore; crowding one upon another, hurrying wildly on into those before them, and overtaken by

those behind. By the time the Rapids have passed the Cataract Hotel, scarcely a streak of green can be discovered among them, so covered is the whole channel with spreading masses of snowy white.

Our next and best view of the Rapids was from the bridge thrown across them to Bath Island, from whence there is another and much smaller one to Ship Island, a picturesque little spot covered with trees, most of them pines, the tallest of which slant backwards, something like the masts of a vessel; and there is one with the stem inclining forward, in the manner of a bowsprit, its lower branches almost dipping into the foam. We sat here awhile on a rustic bench beneath the shade, and looked up and down, and all around, scarcely knowing where to fix our eyes. Our islet lay trembling amidst the turmoil of the white and maddening waters that seemed ready every moment as they hurried past to tear it from its foundation and sweep it away over the Falls. Looking up the stream we saw an ocean of froth, whirling and tumbling amid the sunken reefs; whilst innumerable torrents leaped over the ledges, or, like the jet of a vast fountain, rebounded from the rocks, and danced up, high and sparkling, in the bright summer air. But the rocks, though they enraged the waters to fury, could not arrest their force. On they came, terrific in all their velocity; roaring, rushing, surging, flying along as if madly eager to hasten their headlong plunge down the tremendous precipice.

It was here I first experienced those indescribable sensations of delight, overpowered by feelings of awe and reverence, without which few have looked on Niagara. My eyes were filled with tears. I could not speak. I felt as if the spirit of the Creator was before me, and almost in His own divine form I seemed to hear His holy voice, and feared to interrupt it.

Retracing our steps, we again crossed the bridges, and then descended a high steep bank, which, when half-way down, brought us in view of the whole of the American Falls: the flood, on arriving near the pitch of the precipitous ledge, branching off to supply a whole crescent of cataracts. Rolling over the summits of these cliffs, and pouring down in vast white sheets tinted with the liveliest green, we saw the highest and most beautiful of the Falls descending from the main branch of the Rapids; light, feathery flakes of foam springing off from the sides of the torrent and trickling in silver rills over the dark and broken masses of stone, from whose crevices, for ever wet, grew out such shrubs and plants as love to climb about the rocks and delight in perpetual moisture.

When my thoughts and feelings began to take a definite form, my only regret was, that every being that I loved, every one indeed that I knew, was not there at that moment to look at Niagara. It seemed like something too grand, too beautiful, to last; like a magnificent scene that would pass away while we were yet gazing on it. I could imagine nothing more charming than to live in its immediate neighbourhood for at least a year; seeing it under all its different aspects; in sunshine and in tempest; glittering beneath the bright sky of summer, and darkening beneath a canopy of heavy storm-clouds; the lightning flashing across its ever-rolling torrents, and the thunder of upper air uniting with that whose deep tones ascend for ever from the caverned recesses at its feet. I thought how it must look tinted with the crimson and purple clouds that curtain the close of an autumnal day, "when the clear cold evening's declining," and the fantastic trees of these islands and these rocks come out in the varied and glowing colours of that gorgeous season,—colours scarcely less splendid than those of the sunset sky. And in winter, when it has all its beauties to

itself, when the trees are denuded, the rock-plants withered, masses of ice lying along the shores, and the country round presenting one vast desert of snow; even in winter Niagara must still be beautiful in the crystal pendants hung on the rocks and trees by its freezing spray; and sublime in the overpowering force with which it struggles against the ice that vainly essays to block up its progress.

Nature is always true to herself, and the land-scenery about Niagara is in unison with that of the water. The rocks, chiefly of brown sandstone and blue limestone, are lofty, wild, and rugged. Some are nearly perpendicular, some slope back, and others project forward, impending over the raging waters. In some places they are deeply honeycombed by the incessant action of the spray. The trees and wild vines that grow from the fissures of these rifted walls appear to give as well as to receive support, clasping their tangled and dripping roots and their twining branches against the masses of cracked, disjointed stone, which seem already loosened in their sockets. Even a lonely cluster of wild flowers sometimes glows beneath the shadow of an overhanging block of stone.

The solemn colouring of these gigantic rocks, comprising all the darkest shades of brown and grey, forms a fine contrast to the flowing masses of dazzling white and lovely green to which no pencil has ever yet done justice. The green of the Niagara Falls is indeed like nothing that can be seen elsewhere. It is not the green of the sea in fathom water, nor the deep blue green of the lakes; neither is it the reflexion of the trees on the banks. It is "something more exquisite still,"—a colour so beautiful, so peculiar, that no art can successfully imitate it. Imagine vast and ever-falling torrents of dissolved alabaster, shaded with liquid emerald slightly blended with molten turquoise, and

you may form some faint idea of the tinting of those transcendent waters.

Amid the numerous beauties of the Falls the spray is not the least. It rises in light misty clouds from the turmoil of conflicting eddies, and the vast bed of foam that rolls around their feet, and dances upward in a thousand jets,—the liquid dust of the cataract, the white smoke of this volcano of raging waters. It is said that in a clear day the smoke of Niagara may be seen at Buffalo. We were not so fortunate as to witness the rainbow that, in a certain position of the sunlight, is so frequently beheld upon the mist-clouds that ascend from the Horse-shoe Fall. But we looked down upon several small horizontal rainbows lying flat upon the surface of the froth beneath the rock on which we stood.

The depth to which the Falls descend cannot be ascertained, as the rocks and caverns at their feet are only indicated by the vast body of surging water that whirls and roars among them, and that after raging, seething, smoking, flying upwards and downwards, and tumbling into a thousand varied forms, gradually resolves itself into long white reefs and ripples, diminishing in magnitude and contiguity till they scatter into snowy bells and float off upon the dark green surface of the river below.

We gazed with unwearied and increasing interest, continually discovering new beauties. In consequence, perhaps, of the state of the atmosphere or the direction of the wind, the sound of the Falls was less loud than we had anticipated. There were, in fact, two sounds perpetually accompanying each other, and seeming like the tenor and bass in music. One sound was that of an everlasting pouring and splashing; the other was a low and awful thunder-tone, that for ever murmured far down beneath us, coming up from the caverned recesses of the sunken rocks, and shaking the

ground on which we stood. I think there is some exaggeration in most reports of the great distances at which the Falls of Niagara can be heard.

Though prepared for the grandeur of Niagara, I had not anticipated its surpassing beauty. It was, indeed, a divine picture painted by an Omnipotent Artist. All that has been done by His hand was perfect; the design, the colouring, the accessories,—not a touch could be added to improve it. The water, the rocks, the trees—all harmonised, all combined to produce a scene unequalled in the universe,—graceful in its wildness, lovely in its strength, beautiful in its terrific and resistless power.

Next day, after being lulled to sleep by the roar of the waters, we rose in time to see the Falls beaming in the rays of early morning; and immediately after breakfast we crossed the river to view Niagara from the Canadian side. On our way we visited the "Burning Spring," which is sheltered by a small wooden building, or shanty. In the middle of the spring is placed a sort of churn-shaped, bottomless barrel, within which the water, as it wells up, is kept continually in a boiling state by the gas that rises beneath. The man in attendance lifted off the barrel, and then lighting a twisted paper at a lamp, he set fire to the water; the surface of which was immediately covered with a bright, clear blaze, that rose up and continued burning for some minutes. After the flame had exhausted itself, and subsided for the present, the man dipped two glasses into the spring, and presented each of us with a tumbler of its very clear water; which, on tasting, we found, to our surprise, was cool and palatable, having no peculiar taste or odour. He told us that this wonderful spring was accidentally discovered, in consequence of some hunters who had rested beside it, and kindled a fire to cook their game, having left the fire burning when they departed; so that one of

the logs had rolled into the water, and ignited it. In this state it was found by some persons who came along immediately after. Specimens of the rock near the bottom of the spring are kept here for sale. They look very volcanic.

From the Burning Spring we took a circuit round, till the carriage at last set us down on the Table Rock, which, sloping inward as it descends, shelves out at the top, like a broad cornice, impending frightfully over the abyss below. It requires some nerve to look down from the extreme edge of this vast hanging shelf, which seems to tremble beneath your feet from the vibration of the air forced against it by the immense body of water that thunders down beside you. Here you have the nearest and most magnificent view of the Horse-shoe Fall, the largest part of which belongs to the Canada side. The height is computed at one hundred and fifty-eight feet, and that of the great Fall on the New York side at one hundred and sixty-four.

We next went to the house where proper dresses are furnished to persons desirous of passing under the Horse-shoe Fall. For myself, I thought not even an instant of attempting this exploit; but my companion, another gentleman, and a young lady, prepared for the enterprise. Accompanied by some others of the party, I followed these adventurers down a long, steep flight of wooden steps, erected against the face of the rock, at the bottom of which we stood to see them go in. On turning an angle of the cliff, they were for a few minutes lost to view, and then, to our great relief, they emerged, the lady led on by the guide, a stout black man, who said he went under the Fall twenty times a-day. I shuddered as I saw them enter the dark, misty cavern between the vast projecting sheet of water and the rock behind it. Of this cavern I had heard awful accounts; but still no instance is recorded of any one, amidst its gloomy recesses and on its narrow and slippery pathway,

having actually lost his footing and his life; for, in this frightful excursion, to miss one is to lose the other. The path is a shelf, wet and slimy, and not three feet wide, projecting from the face of the rock, and sloping downwards. It overhangs a precipice seventy feet high, the base of which is washed by the surging waters below; and above, it towers up to the height of ninety feet. When on this perilous platform, where to look up or to look down is equally terrific, you see far above you the inside of the cataract rolling over the summit of the cliff, which, inclining forward, forms, high overhead, an arch of rock and water; the vast sheet of fluid appearing to come down in a solid mass, and with its heavy curtain shutting out the world from your view.

On first entering this gloomy recess, the rush of the caverned wind almost deprives one of breath. You are deafened and confused by the loud noise of the warring elements; and the blinding spray, flying in your face, causes you to hold down your head and close your eyes. This being the moment of fear, is, therefore, the moment of danger. After the first shock, the men who venture into this strange and appalling region always recover their presence of mind; and, directed by the guide, proceed unshrinkingly along the slanting and slippery ledge, with steady eye, firm step, and well-braced nerves. They find courage to cast their gaze upward at the roof of rock that seems ready to break down with the heavy weight of the water that pours over it. They advance towards the dim chaos of mist and darkness which bounds their view as they look before them, and whose secrets have never been discovered. But the guide warns them to turn back, as they have reached the Termination Rock; and in attempting to proceed further they may return no more. The ladies that venture behind the Fall feel, usually, more terror and find more difficulty than they

anticipate; and they cling fearfully to the hand of the guide, depending on him at every step.

I was glad, indeed, when I saw our young adventurers come out in safety from the wild horrors of this dark and dangerous passage. They soon joined us at the foot of the staircase. The gentlemen were drenched with the spray; but it had run off from the oiled-cloth wrapper of the young lady without penetrating it. She looked pale, and said, that having now satisfied her curiosity, she would never again try the feat of passing under the Fall. The youngest of the gentlemen said he liked it so well, that if he lived at Niagara he should delight in taking this cold vapour-bath every day.

I cannot better conclude this sketch than by introducing the beautiful lines written by Lord Morpeth at Niagara; believing that those to whom they are new will read them with very great pleasure, and those who have read them before will gladly peruse them again:—

"There's nothing great or bright, thou glorious Fall!
Thou mayst not to the fancy's sense recall—
The thunder-riven cloud, the lightning's leap,
The stirring of the chambers of the deep,
Earth's emerald-green, and many-tinted dyes,
The fleecy whiteness of the upper skies,
The tread of armies thickening as they come,
The boom of cannon, and the beat of drum,
The brow of beauty, and the form of grace,
The passion, and the prowess of our race,
The song of Homer in its loftiest hour,
The unresisted sweep of Roman power,
Britannia's trident on the azure sea,
America's young shout of liberty!
Oh! may the wars that madden in thy deeps,
There spend their rage, nor climb th'encircling steeps;
And till the conflict of thy surges cease,
The nations on thy banks repose in peace."

L. H. S.

MY BROTHER'S KEEPER.

CHAPTER I.

" When I fell sick, an' very sick,
An' very sick, just like to dee,
A gentleman o' good account,
He cam' on purpose to visit me."—*Old Ballad.*

It was a blustering December day,—no snow to lay the dust or to allay the cold with its bright reflexions; and Winter himself seemed shivering, despoiled of his ermine cloak.

In that very spirit in which some people seek out the worst side of human nature, the wind careered about,—picked up all the dust and straws it could find, and showered them upon the heads of innocent and well-dressed people. Not exclusively, to be sure:—the wind was impartial in its bestowings; but if mischief may be measured by the trouble it gives, and the effects it leaves behind it, then did "the upper ten" get more than their share that day. It mattered little to the chimney-sweeps that their caps were stuck with dry leaves, and their brown blankets flung about in every fantastical way—à la Don and à la Boreas—the carmen had no veils to blow off; and if now and then a rowdy's hat flew into the middle of the street, nobody pitied him, and the hat was none the worse. But the ladies, who fought the wind at every corner, and came upon an ambush of full-grown zephyrs in most unexpected places, found the enemy's reinforcements to be far beyond their own; while hair was frizzed after every fashion not approved; the colour of dark hats became doubtful; and if white ones ever

looked white again, it was only because in town one takes a medium standard of purity.

In the midst of it all the sky was sometimes quite clear, and in the sunshine the driver of some incoming stage loomed out from his high station, and hackney-coachmen became visible. Then, with the next gust, the clouds rushed on, as white and almost as light as snowflakes,—drifting, meeting, covering the blue, and causing an instant fall in the thermometer.

Through the throng of men and things a gig made its way, unmolested, but not unheeded. Everybody looks at a doctor's gig, though everybody has seen one every day of his life,—everybody looks and wonders with a strange sort of interest. And there is always the same thing to be seen. On the one seat a remarkably comfortable-looking gentleman, in his multitude of greatcoats and wrappers (no doctor ever looked anything *but* comfortable); while the other seat contains, with great ease, a comparatively thin individual, hardly a sketch of the doctor, and usually habited in a cap, mittens, and a red worsted comforter. He enjoys, moreover, a share of the boot.

And it is no wonder that everybody looks; for there is a strange meeting of life and death in the air of that gig,—its errand and itself so widely different!

The house towards which this one went had been already visited by the wind many times in the course of the day; and there it had demanded admittance as noisily as at any other house in the whole street. But of late the wind had grown respectful; and though just at the time when the doctor drove up Broadway, it made one desperate dash at the third-story windows, piling dry leaves and dust on every sash,—something it saw there seemed to calm its mood;—the wind not only went down sighing, but took the dry leaves with it.

CHAPTER II.

"I feel it not."—"Then take it every hour."
"It makes me worse."—"Why then it shows its power."
CRABBE.

"The doctor 's come, Miss Rosalie," said a woman, opening the door of that very third-story room. "Been spry, aint he? I shouldn't wonder if his horse was somethin' more than common. But he's come, anyway. What's to be done with him?"

"Show him up here, Martha."

And as the door closed, the young lady's eyes came back to the bed by which she sat.

A child lay there, in that drowsiness which is of fever, not of sleep; to which the hot cheek and the uneasy posture alike bore witness. She was not undressed, for the arm that lay above her head displayed a short merino sleeve at the shoulder; and at a very small distance down the bed, one little shoe of childish cut moved restlessly from under the shawl-fringe that half covered it. With what quick and fluttering action the fringe about her throat was stirred the watcher noticed painfully, and softly drew it away, and was rewarded by the half-unclosed eyes and the lips that met to thank her.

"You have been asleep," Rosalie said, resting her own upon them.

"I don't know," said the child, dreamily. "Who's that coming up-stairs?"

"Doctor Buffem." And even as she spoke, a long-continued and portentous creaking of boots came to a sudden stop at the door; Doctor Buffem having paused for breath and admittance. The last was the easiest obtained.

"What the mischief! Miss Rosalie," he said, with some impatience. "Why don't you emigrate to the stars at once?

Venus would suit you well enough, or you might get a situation in Mars, you're of such a warlike disposition. You haven't got sense enough for Pallas, or you'd never be caught in the third story of a house while there were two below it."

"I thought it would be quieter up here," Rosalie said, with a face that was grave only because she had no heart to smile.

"Nonsense!" said the doctor, "I should like to hear anybody make a noise in this house for once. Quieter! At this scale of elevation 'the music of the spheres' is overpowering." And putting his hands behind him, the doctor marched off to the window, and, with a very panting enunciation, gave,—

> "Yon tall anchoring bark
> Diminish'd to a cock,—her cock a buoy.
> The fishermen that walk the beach
> Appear as mice."

Very particularly comfortable he looked, with his gold spectacles and gold-headed cane; and a head of his own which, if not all of the same precious metal, had, at least, "golden opinions,"—a singular contrast to the figure standing by the bedside, and wishing very intently that his gesticulations might have an end.

"Well, what's the matter with the child?" he said, wheeling suddenly round, as if her existence had but just occurred to him. "Out of breath with running up-stairs, eh?"

And throwing down the shawl, Dr. Buffem took the little hand in his, and scientifically applied his three fingers to the wrist.

"All dressed,—ready to go to Albany," he remarked. "Let's see your tongue. S, c, a, r," said the doctor, looking round at Rosalie.

She gave no answer, that he could see, and none for him

to hear. One quick bound of the heart — a bright spot that came and as quickly left her cheek, and she stood there as before, the hands perhaps holding each other in a somewhat firmer clasp.

The doctor replaced the shawl, straightened himself up, and began to talk.

"Here's a fine case," he said; "but I guess you and I can manage it. What sort of a nurse will you be, hey?"

"The best that I can, sir."

"Hum — ah" — said the doctor, with a recollective glance at Rosalie's black dress which sent a thrill to her finger-ends, — the wound would not bear even that slight touch, — "Yes, I guess you'll do. Got a thermometer about the house?"

She bowed assentingly.

"Have it up here, then; hang it anywhere except over the fire and outside the window, and keep it just at 70°, — no hotter, no colder. And don't let in more than half the sunlight at once, — keep the rest till afternoon," said Doctor Buffem, walking off to the windows and closing the shutters. "You're so close to the sun up here, Miss Rosalie, that he'll put out the eyes of well people if you give him a chance. There, — I'll leave you one crack to put your face straight by, — important duty that in a sick-room. I'll come in again by-and-by, and bring you some powders, — came off without 'em this morning. And get her undressed and put to bed," he added, with a nod at the sick child. "She won't want to take much exercise to-day nor to-morrow. Ever had it yourself?"

"No, sir."

"Well — no, it 's not well; but it can't be helped. Take care of you famously if you do get it."

"What is the matter with me?" said the little patient, now speaking for the first time.

"Only scarlet fever," said the doctor, — "that's not much. Worse thing is, it makes one look like a lobster."

"Shall I be sick a great while?" said the child again.

"Hum"—said the doctor,—"depends entirely. Not if you make haste and get well. I'll cure you up in no time." The words seemed satisfactory enough, but they failed to give satisfaction. Hulda looked away from him to her sister, finding comfort in her look and smile, grave as they both were.

The doctor fidgetted about the room, poked the fire, came back to ask questions, then stamped off to the door.

"Hark you, Miss Rosalie," he said, "don't forget why I left that crack in the window-shutter. Good-bye — I'll see you again this evening. And keep your spirits up, — there's nothing in life to put 'em down."

But Rosalie thought that there was many a thing in life to do that office for her spirits had they needed it. In life! —With that thought came one of life's great antagonists, and, sitting down once more by the bed, she took her little sister on her lap, and began very tenderly that work of undressing which the doctor recommended. Was there anything in death to depress her?

There had been — the tokens of his power were not less plain upon her face than in her dress; and now — human nature lived still! Before those two sisters could be severed many a band must give way that passed about them; unseen in this world, but forming to the eyes of angels a golden tissue of love and confidence. Rosalie felt as if some hand were trying its strength even now. There was something in these quiet preparations for suffering that tried her extremely; and to brace her mind for possibilities, without that sudden strength which an emergency gives, was very hard. And more than once was her hand passed *across* her face with that feeling of which Rutherford wrote,

—"Oh, how sweet it is for a sinner to put his weakness in Christ's strengthening hand! Weakness can speak and cry, when we have not a tongue."

"Do you think I shall get well, Alie?" said little Hulda, looking up at her.

"I trust so, my darling."

Steady and sweet the voice was as ever.

"Then what makes you look sorrowful?"

"Because you look sick. Is not that enough to make me sorrowful?"

"No, — not if I'm going to get well soon." And, as if but half satisfied with her sister's face, Hulda repeated,— "Isn't he a good doctor? Won't he cure me?"

"I believe he is a very good doctor; but, dear Hulda, I trust you in better hands than his."

The child smiled with a perfect understanding of her words, — a look so quick and bright, that Rosalie was silent until her little charge was laid in the bed. Then Hulda spoke.

"Say that to me again."

"I have done as the people did when Jesus was in the world," Rosalie answered, —"when they brought their sick and laid them down at Jesus' feet, and besought Him that He would heal them."

"I wish you would ask Him again," said the child, wearily closing her eyes, "for my head aches very much."

And kneeling down, with the little hand fast in hers, Rosalie spoke once more the words of submission and entreaty, — that strange mingling of feeling which none but a Christian can either know or rest in. When she arose, Hulda was asleep.

Carefully drawing the drapery around the bed-corner, so as to shield the child's eyes yet more from the light, Rosalie began to busy herself in arranging the room for its new use. Unnecessary articles were put out, and the needful brought *in; and the closet was so* filled and arranged that the rest of

the house should be but little called upon. At first, Rosalie had half determined that none of the servants should be allowed to enter the sick-room; but Martha Gumps, light of heart as of foot, having declared that nothing short of a dismissal from the house should keep her from going where she pleased in it, she was made an exception, — and forthwith moved about with a great access of dignity.

"There aint the least bit of squeak leather in *my* shoes, I can tell you," said Martha in a whisper, which, low as it was, penetrated to the remotest corner of the room. "I could walk over hatching eggs and not scare the chickens, Tom Skiddy says. What next, Miss Rosalie?"

"That little thermometer that hangs in the front room down-stairs, Martha—and my desk, and the trivet."

"Theometers, hey," said Martha, — "that aint just the sort of doctor's stuff I took when I was a child, and yet I growed up as fast as most folks, too. What's the good of theometers?"

But she brought it.

"Has Mr. Thornton come home?" was Rosalie's last question.

"Not he!" said Martha emphatically. "The idea! And what use, after all?"

"Ask him to come up here as soon as he does, Martha." And then she sat down quietly to wait — that hardest of all things to do.

The sun was not long in finding his way to the horizon, and the darkness which had lain hid until his departure came forth: at first slowly and tarrying in corners, then marching with swift steps over the whole city. The crowd gave way before her; footsteps were few and distinct; the hum and the roar were past; and every carriage now had credit for just its own noise, and no other. The doctor had come on his promised visit, and had left medicine 'to be *taken when she* wakes up;' and still Rosalie sat there alone

in the dim light from the fire, and the far-off and shielded candle. The winds were whispering at the corners of the house, and anon sighing around it—now raising and now depressing their voices, but never entirely silent. Footsteps now had a character and meaning, coming out as they did from the deep stillness and passing into other stillness as deep; and, as an oyster-man went slowly through the street with his cart, his deep, monotonous cry of 'Oys—ters!' chimed wildly, and yet soothingly, with the universal tone of all things else.

And so passed the evening, until a loud ring sounded through the house, and the new-comer had sprung up-stairs and entered the sick-room, almost before the startled bell clapper had regained its equanimity.

"Hush!" was Rosalie's first greeting.

"I thought you wanted to see me," said the young man, with a but half-checked step.

"Yes, but softly—you will wake Hulda."

"No disparagement to your eyes, my dear—which are as fine as can be no doubt—but I also must lay claim to some powers of vision. Hulda has been watching me ever since I came into the room. Now, what is your pleasure? Martha having screamed 'scarlet fever!' after me as I came up-stairs, I am prepared for any disclosures. Is that really the state of the case?"

"So Dr. Buffem says."

"Well, I suppose he is, at least, on a par with his brethren in sagacity," said Thornton, sitting down on the edge of the bed. "How do you feel, young one? Heyday!—don't you want to be kissed?"

"No," said Hulda, who had turned her face very decidedly away. "You've been smoking."

"What a little goose you are!" said her brother, laughing, and standing up again. "And I suppose I may not *even shake hands with* you, my Lady Squeamish?"

But the lips that were hastily offered him showed no fear of his, and the hand that rested on his shoulder had no touch but of sisterly affection—unless a little want of comfort mingled therewith. Thornton returned the embrace very heartily.

"You are a dear girl," he said, "with all your prejudices. Now, don't trouble yourself about this child—I daresay she will do well enough. Would it be any comfort to you if I sat up with her to-night?"

"No," said Rosalie, with a smile which she could not repress, at the very idea; "for then I should have two people to take care of instead of one."

"What are you going to give her?"

"Something I have here—I don't know what;—at twelve o'clock, Dr. Buffem said."

"Well, I will come in then and see how you get on, and give her the medicine."

A very needless offer, but it was not refused; and when little Hulda awoke at midnight from uneasy dreams to the dazzling candle, it was to see the medicine spoon in the hands of Thornton, and that plan of arrangements sanctioned by her sister's quiet presence and smile. But it was Rosalie's arm that raised her up, and it was on Rosalie's bosom that her head lay; and if Hulda dreamed of angels that night, they all wore Rosalie's face.

CHAPTER III.

"Out of the day and night,
A joy has taken flight;
Fresh spring, and summer, and winter hoar,
Move my faint heart with grief, but with delight
No more—O, never more!"—SHELLEY.

For several days the doctor's visits were short and frequent; and his conversation was made up of little abrupt ques-

tions and ejaculations, assurances to Hulda that if he killed her he would have her buried, and earnest requests to Rosalie that she would furnish him with another patient. His first step was always towards the window; and having admitted a few of the proscribed sunbeams, he came back to the bed and made his observations, and once more closed the shutter. Counsel and warning about antimony and apple-water took up what further time the doctor saw fit to bestow in this quarter of his round; and then the room was left to the unquiet motions of the sick child, and the gentle and tender ministering of the nurse. Sometimes, when Hulda was more than usually at ease, her eyes followed Rosalie about the room, watching with a dreamy pleasure the perfect doing of the one person whom she thought perfect; noticing the noiseless placing of a stick of wood on the fire, and the laughing answer which the flames gave thereto; and sometimes her thoughts were held fast for a while, as the white ashes came over the red coals, and then dropped off, or the sap went singing out at the end of the stick, or the stick itself broke and fell down over the andirons. But her eyes got tired with the light and went after Rosalie, who was, perhaps, arranging the cups and napkin on the little stand; and if she went into the closet Hulda knew she had gone for an apple, and watched with some interest while the apple was made fast to a string, and that again to the mantelpiece. Then she noticed the desperate twists of the apple when it found itself at liberty to twist; and turning her head a little, she listened to hear the first spurt of the apple-juice, and watched the bright drops as they came back from their tangent and fell into the little silver plate that awaited them; while the apple having waltzed to its heart's content, presented a steady front to the fire, and rebelled against being roasted all round. Often Hulda fell asleep here, and then awoke in time to see the refractory

apple, all brown and shrivelled, cut loose from the string, and shut up in a silver pitcher, with plenty of boiling water. At this point she always felt thirsty, and was quite ready for the tumbler by the time it came to her bedside; but though Rosalie held her up, and managed glass and spoon to admiration, tasted the apple-water too, lest it might be not sweet or not cool enough, Hulda could take but a few spoonfuls, and was glad to lie down again.

Thornton's visits were a little variety, but of no other use; though he always wore a look as if he knew he ought to do something, and hadn't the remotest idea what—a look which his sister understood perfectly and read with sometimes a smile, and sometimes a sigh. The visits were always short. Hulda could bear very little talking or reading, and her greatest comfort was to have Rosalie's face on the pillow with her own, and to hear from her lips a verse of a hymn or from the Bible, or some little story or incident, or a few of her own sweet and quiet words. No one else entered the room, except to bring wood and water and Rosalie's meals; and on these occasions Martha Gumps restrained as much as possible her own love of talk, and said not many words more than were needful. The sounds from the street became to little Hulda's ear almost what they were to her sister's; and in the still, late evening she lay and listened to the oyster-man, with a strange feeling of dreariness and pleasure. And as in health, so in sickness, the morning never rose, and the evening never fell, that Rosalie did not kneel by her little sister, and pray with her and for her in just such words as she could understand. Martha Gumps stayed her foot if perchance she entered the room at those times; and Thornton more than once found himself there, and wished himself away, and did not go.

"I wonder what Dr. Buffem would say to such pro-

ceedings!" he remarked one evening, when he had come softly in during the prayer, and had stood watching and listening—too proud even to bend his head. "In my opinion he would call them feverish. What would you say, Rosalie, if I should report, and if the doctor should issue contrary orders?"

"I should hear them," she answered, with a smile, that told very plainly what more she would do.

"And by what token, my sage sister, do you prove yourself wiser than your physician?"

"O, by not thinking of men above what is written."

"'A most complete lady in the opinion of some three beside herself,'" said Thornton. "Nevertheless I stand to the feverishness."

"But it couldn't make me feverish," said Hulda, putting in her word with a voice as pale and thin as her face. "I like it—always."

"Like it, you pickaninny! You don't know what you like."

"It would be strange," said Rosalie, with a very gentle look at Hulda; and then, turning one no less gentle, but of somewhat different expression upon Thornton, "It would be strange if a child brought up as she has been, to look upon God as her best friend, should be disturbed or wearied by all mention of His name."

"You are looking marvellously pretty to-night," was Thornton's cool reply, while he surveyed his sister as if he had not the remotest idea what she was talking about. "I only hope you will keep on these wrappers when you come down-stairs again. I am as tired of seeing you in that black dress as a man can be of seeing you at all, I suppose. Here, don't turn off with that face;—look up and kiss me before I go. What are you so grave about?"

She gave the required kiss, but not the required answer;

and, moving away to the fire-place, began to pile together the fallen brands—arranging and altering, as if in no haste to have the task finished.

"Well, what?" said Thornton, following her. "What have I said that was so dreadful? Did you never hear that

"'A saint in crape is twice a saint in lawn?'"

"You speak as if you did not know why I wear that black dress," she said, without looking at him.

"I don't know why the wearing is in the present tense, I'm sure. Give me the tongs; you know as much about fires as about some other things. I say it is a fashion I cannot abide; and if one must follow popular superstition for a time, the less time the better. Such a fire!—put together as if the world went by suggestion!"

"The world does not go by pounding," said Rosalie: "and your fire is going up chimney in the shape of sparks. Hadn't you better suggest to it to blaze?"

"I never make suggestions," said he, throwing down the tongs. "What I've got to say comes out head first. Now, here you persist in shutting yourself up, and trying to be as nun-like as possible. I wonder you submit to be called Rosalie! Why not 'Sister Ursula,' or some such sweet appellation?"

"I should not like to undertake any more Sisterhoods than I belong to at present," said Rosalie, with a slight smile.

"Well, leave off that dress, will you?" said Thornton. "I abominate hoods of all kinds! And let us have pleasant recollections instead of disagreeable."

"Disagreeable!" She stood silent and still, while the flickering light of the fire played over her face, and mingled curiously with the feelings that flitted to and fro there.

"Oh, Thornton!" she said; "would you forget our mother?"

Her hands were laid upon his shoulders now, and her

eyes looked clear and full into his. He would willingly have freed himself from that light touch of reproof and sorrow. Yet he did not try; but his own eyes fell, and it was with a very changed and softened expression that he answered,—

"I would sometimes forget, if I could, that she is not here."

She might have filled that mother's place for the way in which she looked at him. And then, laying her head on his shoulders, while her hands were clasped about his neck, Rosalie said,—

"If you could. But, oh my dear brother! never forget where she is! I would I could keep that before you every minute of your life."

If the wings of the recording angel had touched him, and the book been laid open before his eyes, Thornton could not have felt more sure that a new prayer for him was registered in heaven. And yet he did not answer according to that assurance; and there was no more spoken; for when Rosalie raised her head, it was to bid him once more "Good-night;" and he left her without a word.

Hardly had little Hulda eaten that small allowance of tea and biscuit which she called her breakfast, next morning, before the doctor made his appearance. But everything was ready for him, and the room not only wore a comfortable, but a comforted aspect; for Rosalie's face was a shade less anxious, and Hulda's face several shades more bright. So, in answer to the doctor's inquiries, she told him that she was a great deal better, though, indeed, she had been 'better' every time he had come.

"I shouldn't wonder if you were to be quite a respectable-looking child, after all," said Dr. Buffem, bending down to impress his approbation upon Hulda's forehead, "one of these days—if you keep on. Feel most like an oyster or a clam, this morning?"

"I don't know how they feel, sir," said Hulda, laughing.

"Don't laugh," said the doctor—"that will never do—not sick yet, Miss Rosalie? I had strong hopes you would be by this time. *She* looks like an oyster, don't she, Miss Tom Thumb?"

"No, indeed!" said Hulda, quite forgetting her own name in the one bestowed on her sister; "not a bit!"

"You think not," said the doctor. "Well, I could swear there had been pearls in the vicinity. 'A sea of melting pearl, which some call tears.' Who's been eating honey?"

"Oh, Rosalie had it for her breakfast!" said Hulda.

"Hum!" said the doctor, "what have you had for yours? Eaten a whole beefsteak, eh?"

"May I have some beefsteak?" said Hulda.

"Why, no," said Doctor Buffem; "I should think not. Wait a day or two, Miss Rosalie, and then give her beefsteak and a little antimony, a soda biscuit, a cup of chicken-broth, a buckwheat cake, a little salts or magnesia, or castor oil—whichever she likes best—an oyster, a clam, a cup of tea; keep the room at 70°, and the sunlight out of doors, and then read Cowper."

As the doctor stamped out of the room, Rosalie sat down by Hulda, and putting her arms round her laid her own head on the pillow, with a feeling of thankfulness that was too weary to do aught but rest. And rest fell like the dew upon sun-touched flowers. But before six quiet minutes had ticked away, the door opened again to admit Martha Gumps.

"Here's a to-do!" she said. "Here's been Mrs. Arnet secluding herself down-stairs, to spring upon the doctor as *he* come down, for to find out whether she could see you with safety, as she says. And the doctor gave it to her well. He said there wasn't no danger for nobody but you, and he didn't think, as it *was* quite safe, lookin' at it in that *light, but* he guessed you could stand it, he said. So now

the sooner the quicker, Miss Rosalie. She smells dreadful strong of pickles."

With this forewarning Rosalie felt no surprise that her visitor's salutation kept at the safe distance of a somewhat warding-off bow of the head; and as she herself did not feel impelled to advance nearer, they took chairs at opposite sides of the fire.

"Do you consider Hulda to be out of danger?" began Mrs. Arnet, who looked very much like a butterfly deprived of its moral expression.

"The doctor so considers her," said a sweet voice from the other side of the fireplace.

"Well, my dear, he is quite right in endeavouring to keep up your spirits; but at the same time I must tell you that amendments are precarious things. Mrs. Forsyth lost a child with scarlet fever only last week, and she had been supposed to be out of danger for several days. It is a shocking disease." And Mrs. Arnet made free use of her aromatic vinegar, while Rosalie's heart sought better help.

"When is Marion coming home?" she inquired presently.

"Soon," said Mrs. Arnet. "I have considered it quite a providential thing that she should be away just now, for I am sure nothing on earth would have kept her from coming to see you."

Rosalie felt sure of it, too.

"She is so very imprudent," pursued Mrs. Arnet. "I believe she would just as soon as not sit up nights with anybody that had any disease. And if I remonstrated, she would probably tell me that she was safer there than doing nothing at home. For my part, I think one owes something to one's family."

"And nothing to the family of one's adopted brother," thought Rosalie. But she checked the thought, and answered quietly that family duties could hardly be overrated.

"Which reminds me that I am keeping you from yours," said the lady. "How is Thornton? He never comes to see us now: but I cannot blame him. Give him my best love, my dear." And Mrs. Arnet's eyes sought her handkerchief, and her handkerchief sought her eyes; but that was probably the fault of the aromatic vinegar. And, too affected for more words, the lady bent her head graciously, and left the room, giving Rosalie a wide berth as she went. In another minute Rosalie was up-stairs. There sat Thornton, reading the newspaper by the side of the sleeping Hulda.

"It is an extraordinary thing to see me, isn't it?" said he, in answer to Rosalie's first look of pleasant surprise.

"But I thought you had gone out?"

"One must go out in order to come in," said Thornton. "If you will promise to come down to dinner to-day, and let me order it when I like, I will come home."

There needed no answer but what the eyes gave him.

"You look sorrowful, Alie," said her brother. "What has that woman been saying to you?"

"She left her best love for you," said Rosalie.

Thornton's lip curled with no attempt at disguisement.

"I hope she did not come on purpose to bring it," he said. "If her love were in the market, the report would be, 'Supply light, and the market dull.'"

"She says," continued Rosalie, "that if Marion had been at home nothing could have kept her from coming here."

Thornton's eye flashed, but he only said, "Of course."

His sister looked at him, and then at the fire, and then at him again.

"Oh, Thornton! will you never give that one little promise? for her sake—for mine?"

He answered, "Never!" and went.

(To be continued.)

LIGHT'S TEACHINGS.

THE Light is ever silent;
It calls up voices over sea and earth,
And fills the glowing air with harmonies,—
The lark's gay chaunt, the note of forest-dove,
The lamb's quick bleat and the bee's earnest hum,
The sea-bird's winged wail upon the wave.
It wakes the voice of childhood soft and clear;
The city's noisy rush, the village-stir,
And the world's mighty murmur that had sunk,
For a short hour, to sleep upon the down
That darkness spreads for wearied limbs and eye.
But still it sounds not, speaks not, whispers not!
Not one faint throb of its vast pulse is heard
By creature-ear. How silent is the Light!
Even when of old it waken'd Memnon's lyre,
It breathed no music of its own; and still,
When at sweet sunrise, on its golden wings,
It brings the melodies of dawn to man,
It scatters them in silence o'er the earth.

The Light is ever silent;
It sparkles on morn's million gems of dew;
It flings itself into the shower of noon;
It weaves its gold into the cloud of sunset,—
Yet not a sound is heard; it dashes full
On yon broad rock, yet not an echo answers;
It lights in myriad drops upon the flower,
Yet not a blossom stirs; it does not move
The slightest film of floating gossamer,
Which the faint touch of insect's wing would shiver.

The Light is ever silent;
Most silent of all heavenly silences;
Not even the darkness stiller; nor so still;
Too swift for sound or speech it rushes on
Right through the yielding skies, a massive flood
Of multitudinous beams: an endless sea,
That flows but ebbs not, breaking on the shore
Of this dark earth, with never-ceasing wave.
Yet, in its swiftest flow or fullest spring-tide,
Giving less sound than does one falling blossom,
Which the May-breeze lays lightly on the sward.

Such let my life be here;
Not marked by noise but by success alone;
Not known by bustle but by useful deeds.
Quiet and gentle, clear and fair as light;
Yet full of its all-penetrating power,
Its silent but resistless influence;
Wasting no needless sound, yet ever working,
Hour after hour upon a needy world!

Sunshine is ever calm;
There are no tempests in yon sea of beams,
That bright Pacific on whose peaceful bosom
All happy things come floating down to us.
Light has no hurricane, no angry blast,
No turbid torrent laying waste our plains.
Morn after morn goes by, and the fresh light
Pours in upon the darkness, yet no storm
Awakes, no eddy stirs the tranquil glow:
No crested billow rises, and no foam,
Drifting along, tells of some tumult past.

Sunshine is ever strong;
No blast can break or bend one single ray;

In seven-fold strength it faces wave and wind;
Heedless of their opposing turbulence,
It passes through them in its quiet power
Unruffled, and unbroken, and unbent.
No might of armies and no rage of storms
Can turn aside one sunbeam from its path,
Or bate its speed, or force it back again
To the far fountain-head from which it came.

Sunshine is ever pure;
No art of man can rob it of its beauty,
Nor stain its unpolluted heavenliness.
It is the fairest, purest thing in Nature,
Fit type of that fair heaven where all is pure,
And into which no evil thing can enter;
Where darkness comes not, where no shadow falls,
Where night and sin can have no dwelling-place.

Sunshine is ever joyous;
Its birthplace is in yon bright orb which flings,
O'er cliff and vale, its wealth of rosy smiles.
Each sunbeam seems the very soul of joy;
No sadness soils it; scattering gladsomeness,
Like a bright angel, onward still it moves.
The very churchyard brightens, as the ray
Alights upon its tombstones, and the turf
Seems strangely heaving to the radiant glow,
As if fore-dating the expected sunrise,
When, at the first gleam of the Morning-star,
The faithful grave shall render up its treasure,
And sunshine, such as earth has never known,
Shall fill these skies with mirth, and smiles, and beauty,
Erasing each sad wrinkle from their brow,
Which the long curse had deeply graven there.

Kelso. H. B.

THE THRONE OF GRACE.

CLEMENCY is one of a sovereign's noblest qualities, and its exercise must to himself be as delightful as its exhibition is to beholders endearing and impressive. But it is not always that his office as administrator of law and guardian of the public welfare, allows him to indulge his private or personal disposition: for, by a false leniency, by being too soft and facile, and so making pardons too frequent, a sovereign may multiply crimes, and may bring his laws into contempt; whilst, by letting loose on society a host of miscreants, for whose reformation no means have been taken, he may contaminate the virtuous community, and may inflict on his dominions an injury more grievous than if he broke up a pest-house and scattered its contagious inmates through all his provinces.

Of the arrangement to which we owe *our* amnesty we do not know the entire details, but we know such things as these: 1. It was no suggestion of a third party, much less was it a device of the culprit's own; it was "a mystery of godliness," an extrication which Wisdom, moved by tender Mercy, found out, and which God alone could propose to God. 2. It was an expedient which amply vindicated the broken law, and held forth no encouragement to a repetition of the first transgression. The eternal Son of God became man, and taking a nature that could die, He offered an atonement for sin, exhaustive and complete, and brought in a righteousness everlasting and redundant, which is counted as the righteousness of all the second Adam's family. And, whilst thus magnifying the law and justifying the ungodly, the magnificence of the sacrifice was the best

security against a pardon so purchased encouraging a spirit of levity or lawlessness. It as much as said, These are the lightest terms which Justice can accept. No ransom less costly can release from the desert of sin. And if a new race fall from innocence to guilt, or if any member of the human family pass away from earth contemptuous of Calvary, there remains no more sacrifice for sin. In order to obtain remission we must procure a substitute greater than Immanuel—a victim who is more than Divine. 3. It was a plan which abundantly guaranteed the restoration and progressive improvement of the rescued offender. In other words, it insured that the pardoned should not be moral pests, but epistles of goodness and patterns of every excellence sent forth to circulate in the midst of society. And this not merely from the force of generous and grateful emotion, but from a peculiar feature in the scheme of mercy: from that condition in the covenant of grace which secures to the redeemed of the Saviour the new-moulding and inspiring influence of the Holy Spirit the Comforter. When Demetrius starved into surrender the insurgent city, and assembling the inhabitants in one place, surrounded them with his soldiery, they expected to die; but the conqueror said, "It is not an enemy whom you have refused, but a prince who loved you, and still loves you, and who wishes to revenge himself only by granting you pardon and being still your friend. Return to your homes. Whilst you have been here, my people have been filling your houses with provisions." In the first gush of gratitude, in the first ecstasy of admiration, there would be no lack of loyalty; and yet in the lapse of months and years that loyalty might have died away, and the fickle Athenians might have been in danger of revolting again. And so when God undeceives the arrested transgressor—when He tells him, "I am not your enemy. I so loved the world as to send it a Saviour.

I grant you a free pardon, and I only seek to be your Friend. And during this interval, while you have been harbouring such hard thoughts, and rebelling against me, I have been preparing a feast of fat things for you;" in the first burst of astonishment there will be no want of devotion. "What shall I render to the Lord? Mine ears must be bored. Behold the Lord's servant for ever!" But the bones which rejoice grow used to health. The deliverance ceases to be recent; and when early motives lose their freshness, there is a danger lest, along with waning gratitude, obedience grow stunted and formal. But the same economy of grace which confers on the sinner believing an instant pardon, secures to the believer the teaching and quickening of the Holy Spirit: and though His blessed influences may not always be the subject of a vivid consciousness, they are none the less real; and they are so kindly continued and so effectual, that notwithstanding corruption within and temptation without, the believer is enabled to hold on to the last, not only a new and altered man, but most usually a rising and improving character.

"Seeing then that we have a great High-Priest, that is passed into the heavens, Jesus the Son of God . . . . let us come boldly unto the Throne of Grace, that we may obtain mercy, and find grace to help in time of need." The graciousness of God is an unchanging perfection. Amongst our weak and fallen brethren we are accustomed to caprice and uncertainty. The last time we parted with the friend nothing could exceed his frankness and fervour; but as we met him yesterday, all was coldness and unaccountable reserve. The last time we were in the presence of this superior, he was so affable and so confiding that we hoped to rise high in his favour; but as we return to-day, we know not the reason, but his answers are sharp and short, and his face is dark with frowns. You remember the Eastern despot. If

any entered the presence-chamber unbidden, the monarch might extend the golden sceptre, and as the suppliant touched it, he was safe; but if this token were withheld, it was death to the intruder. And the doubt was dreadful. Should the autocrat be in a genial humour, the suppliant's suit is granted and his fortune is made; but just as likely a sleepless night or some vexation has left its thunder on the haughty visage, and when the prostrate petitioner implores the remission of a heavy impost or a reprieve for some doomed kinsman, he is answered with a flash of fury, and, withering like a worm, is carried out to die. But from that caprice and inconstancy which so embitter earthly friendships and so darken human governments, the character and the administration of the great I AM are sublimely exempted. Infinitely exalted above the circumstances which influence ourselves, He is the same, yesterday, to-day, and for ever,—as just, as true, as benevolent, as gracious, as when He opened Paradise to the dying thief, and answered the first petition urged in the name of His Holy Child Jesus. And,—for even here we may get helps to our faith in our earthly experiences—just as there have been men in whom there was a lovely reflexion of a loftier excellence,—men who had so learned of Jesus that to a goodly degree they exhibited His constancy,—men who were not creatures of impulse, but under the guidance of goodness,—men who were governed not by personal likings or dislikes, but by great judgment-proof first principles: and you could count on them. The reception which they gave you yesterday, you could rely upon to-day; the award which they had delivered in the last submission they would repeat in its present counterpart: So, in the case of Him with whom we have most to do. He changeth not. All His decisions and all His doings in past conjunctures have been the best which Infinite Wisdom could pronounce, or Infinite Goodness could perform; and when

similar exigencies occur, or similar pleas are offered, like interpositions will occur and like answers will be returned. God is no respecter of persons. His throne is founded on first principles, and all His procedure is that which boundless Benevolence would dictate, and which a Wisdom that knows the end from the beginning would approve. So that we may safely say, that the most absolute of all governments is withal the least arbitrary, and that the sceptre whose sway is the most resistless is the sceptre under the completest control,—the sceptre whose movements we could most infallibly calculate if in each case we knew beforehand what equity and kindness required; for it obeys no fitful fiat nor ever yields to passing impulse; but in its oscillations, however causeless or however the result of mere self-acting volition they may appear to us, it is still obeying the "good pleasure of" God's "*goodness.*"

So constant is God's grace that there is nothing on which we may count more securely. The Throne which God has set up in this world of ours is a Throne of Clemency; and "Grace reigns" is the purport of every Gospel proclamation. In other words, we are told, that in virtue of the satisfying work of the Saviour, it is consistent with God's holiness to yield to the promptings of His compassion; and now that it is no injustice to cancel expiated sin, it is a great joy to pardon the sinner.

In the exercise of God's clemency there is nothing arbitrary, nothing capricious or uncertain. All is first principle; all is fixed and revealed arrangement; all partakes the constancy of Him whose dispositions, amidst every various dispensation, know no shadow of turning. Nothing will ever alter God's love for His beloved Son. Nothing will ever lessen His complacency in the finished work of the Saviour, or lead Him to give a colder reception to the sinner who pleads the merits of Immanuel than He gave to the

blasphemer of Tarsus and the converted voluptuaries of Corinth. But as long as man's Mediator keeps His station at the right hand of the Father,—as long as the blood of our Divine Brother retains its voice, and speaks better things than the blood of Abel,—as long as the echoes of the upper sanctuary repeat that dying cry, "Father, forgive them;"—so long will it be just in God to pass by transgression, and so long will it be a joy to all His generosity to bestow the pardon which penitence craves, and which justice no longer withholds.

In order to receive that pardon, we have only to come to God through Jesus Christ. There are no courtly punctilios prescribed, but there is a great principle laid down. That principle is, that whoso shall so far agree with God Himself as to give glory to the work of Immanuel, shall benefit by that work; or, otherwise expressed, that whosoever shall subscribe his name to that petition for pardon which has already received the signature of the Atoning Surety, shall never come into condemnation, but in the very fact is already passed from death to life. In such an event—in the case of such believing in Christ—in the case of such an adhesion to the scheme of mercy, there need be no more doubt as to the forthcoming pardon than there need be distrust in the laws of Nature. To those who come for it to the Throne of Grace, God Himself has taught us that His mercies are as sure, as it is sure that the thick cloud will be blotted out and melted away in the blazing beam;—as it is sure that the sun will soon salute his expectant gaze whose eyes are turned to the serene and brightening orient;—as it is sure that the rich round drops will not spin upward through the firmament and disperse through empty space, but will descend on the outspread eager soil. If we return to the Lord, thus surely will He raise us up and cause us to live in His sight; for His going forth is prepared as the

morning, and He shall come unto us as the latter and rain comes down on the earth.

Reader! let each of us, then, take words and sa God, I am thy creature. Every moment I depend on and if I am to lead a blessed life here and hereafter, it i a heaven of thine own giving, and it must be given whose desert is hell. But I hope in thy mercy. T it has taught me that Thou wilt not connive at sin, th of Christ has taught me thy clemency. And encour thine own invitations, I come to Thee. I come in th of Him who, occupying the nearest relation to Thys so generous as to become the near relation and the ficing representative of our fallen family. O Fathe Lord Jesus, for His sake have mercy on a miserable His sufferings do Thou accept in lieu of my merited ment, and let His spotless obedience earn my admissi forfeited heaven. I believe thine own declaration tha art a God ready to pardon, and I now draw nigh r to think that it is on a Throne of Grace that Thou gi this audience. From that Throne I beseech Thee sen the Holy Spirit the Comforter. May He increase a petuate those grateful feelings and devout affections trust He Himself has enkindled, and conduct me to of my course a lowly but true-hearted follower of the Redeemer. And whatever else I forget, may I ever ber that I have a great High-Priest who is passed i heavens; and whatever darkness sin may hereafter l my soul, may I never forget the revelation of this ho always be able to come boldly to the Throne of Gra I may obtain mercy, and find grace to help in time c for Jesus' sake. Amen."

THE VAUDOIS AND THE VAL LOUISE.

THE highest mountain in France forms the apex of a triangle of which the two extremities of the Cottian Alps, the Mont Genévre to the north and the Mont Viso to the south, form the base. The district of the Hautes Alpes, contained between the Mont Pelvoux and the ridge of the Cottian Alps, may be considered as the aboriginal settlement of the French Vaudois. In the basin of the Durance and in the valleys of its tributaries, some of them the scenes of Neff's successful labours, the unquestionable traces of the primitive Church may still be found. But there is one valley in which there is no living testimony. They are the dead who speak from the Val Louise. One great cavern under the precipices of Mont Pelvoux, and the pulpit in the church of Val Louise, are the silent but outspoken records of the massacre which, in obedience to a Papal Bull issued in 1487, exterminated a population of three thousand souls.

Who has contemplated without a shudder the tragic picture of Cataneo's infatuated troops driving the peaceful inhabitants into the narrow gorge of their valley,—the Vaudois singing their *cantiques* as they fly to their hiding-place,—the Papists breathing out slaughter against the Christians? The women and children—and, as some accounts say, the flocks and herds—with provisions enough for two years, are safely transported across the almost inaccessible crags, and the cavern of Pelvoux receives them into its secure asylum; and here they might have tired out the patience of a hardier general than Cataneo. But the renegade Palud suggests the scheme of surmounting the huge barrier of precipice overhanging the cavern, and by ropes

and combustibles succeeds in striking the refugees with panic, and the work of slaughter is accomplished. Those who attempted to escape were either destroyed by the flames or by the sword of the enemy; while those who remained in the cave were stifled by the smoke. Four hundred infants were found suffocated at the breasts of corpses, and three thousand Vaudois perished, including the whole population of Val Louise. Cataneo distributed the property of the martyrs among his followers, and from that day to this there has never been a Vaudois or Protestant family resident in the valley.

Few travellers have visited this spot; very few, if any, have penetrated the cavern. The horror of such a tragedy seems to have checked the interest of the Protestant as he passed along the highroad from Gap to Briançon, and told him it would be in vain to seek for the living among the dead. Such, at least, was my own impression the first time I passed that way; but having last year the two inducements to a mountain ramble—fine weather and leisure —I determined to make an attempt to visit the Cave.

It was one of those days which at midsummer are peculiar to the Hautes Alpes,—the scenery as wild and bleak as in the highest passes of the Oberland, the temperature and colouring that of Como and Milan. The snowy tops of Argentiere and Pelvoux seemed to be asleep on the blue bosom of the cloudless sky, and the only thing that moved was the sickle and the troops of muleteers carrying their harvest home. Our party consisted of Mons. B., superintendent of colporteurs for the district; Mons. B., the Vaudois pasteur of Fressinière; Mons. F., a colporteur from Geneva; and myself. We were provided with mules, two attendants on foot, and a scanty supply of provisions from La Roche. From La Bessèe, where we left the main *road,* we were about two hours *en route* to the town of Val

Louise, having crossed the Durance at a narrow gorge in the rocks where it receives its tributary from the Val Louise, and where a heavy stone wall, or breastwork, has been thrown up across the valley to protect it from invasion. It does not, however, bear the marks of very great antiquity, and does not seem to have been connected with the crusade against the Vaudois, who made no resistance to Catanco. In a military point of view, however, it is a position which in those days might have been occupied with much effect.

The town of Val Louise stands in the fork of two valleys, commanding two sides or ridges of the Mont Pelvoux, and it is difficult to conceive anything in mountain scenery more beautiful than its situation. There are the usual details of the Alpine metropolis,—the roaring torrent, the bridge, the church with its lofty spire, the balconied houses, and the busy little auberge reeking with the smoke of omelettes and tobacco. Here we found fodder for our mules, but very little for ourselves. The *salon* was pre-occupied with a noisy party of the aristocracy of the valley, at which the Catholic priest did the honours, and a band of government officers who are employed by the "Woods and Forests" of France to mark the trees which are to be cut down for fuel during the year. Leaving the confusion of the inn kitchen—for it is here that all the business of man and beast is done—I sought a refuge in the church which had attracted my notice on entering the town by a gigantic fresco on the tower representing St. Christopher with a fir-tree for a walking-stick, carrying a diminutive figure of the Saviour, who holds a globe in His arms. The church has no marks of great antiquity, but in searching about in the masonry of the porch, I found a stone with the date 1418 upon it, showing that there had probably been a church there seventy years before the massacre. The church-door was ajar, and we entered without any interruption. Here

we found a curious and interesting contrast. Against one of the pillars of the aisle, midway between the high altar and the western end of the church, stands an old wooden pulpit, bearing all the marks of identity with the pulpits which are universally used in the churches of the Vaudois both in France and in Piedmont, and utterly unlike the style of pulpits used in Roman Catholic churches. Mons. B., upon my making the remark, said, that it was

generally known and admitted to be the very pulpit which stood in the church before the massacre. But if the pulpit cannot speak in a Popish church, the font can; for at the western extremity is a huge stone font, rivalling in height and exceeding in bulk the Protestant pulpit, having on the wall above it emblazoned in large letters, "*Ici on reçoit la vie.*" And here, behind the tradition of St. Christopher, stands the silent pulpit, testifying against the Romish heresy of transubstantiation on the altar and of sacerdotal regeneration in the font. This empty pulpit amid the darkness of Popery almost forced the question of Isaac from our lips, "Here is the fire, and here is the wood, but where is the *Lamb* for a burnt sacrifice?"

Our route from Val Louise to the hamlet of St. Clos, and from thence to Ail-froide, is an ascent of some four or five miles into the gorge of the valley; and as you penetrate further into the narrow chasm you realise very sensibly the manner in which the flight of the 3000 must have been accomplished. Having engaged a guide, we rode on as best we could among a frightful *débris* of rock, until we came to a deposit of sand and loose stones which forbade further progress on horseback. And here we lifted up our eyes to see 6000 feet of precipice above our heads and the cavern upon a shelf of the rock one hour and a half from us. Having tied our mules to some stunted larch-trees, we followed our guide. "There," said he, "upon those crags the hats of the murdered men hung for years, and the cavern is named after them." For one long hour we scrambled upon hands and knees up the precipice, following the ragged fissures to their summit; and then crossing the face of the rock to another opening, where we commenced another work of toil, we reached at length a sort of platform upon a shoulder of the crag, and congratulated ourselves upon having surmounted the chief difficulties of the ascent. But as we proceeded across the smooth incline we found our shoes ill suited for the work, and it was proposed we should take them off. This only increased the labour and the danger, which having endured for some time without making much advance, we were compelled reluctantly to return to the landing-place and resume our shoes. The sun was now low, and with another half-hour of scrambling before us, we deemed it best to give up the attempt, and, with great hazard, by the help of the guide and the kind providence of God, we reached our mules in safety, and rode in the dark to St. Clos, where we got shelter in a granary for the night. During our descent the guide was very communicative of the traditions of the valley.

"There," he said, pointing once to an open space near the torrent below,—"there the Vaudois were collected after they had been apprehended by the troops, and they were all killed on that spot. The river was tinged with their blood down to the bridge of St. Clos." "The priests tell us," he said, "that they were a savage set of banditti, and it was necessary to destroy them." Poor creatures! the priests do not quote the words of the Papal death-warrant, which describes the Waldenses as "detestable heretics."

This failure of our expedition, disappointing as it was, produced a few fruitful remarks which may be serviceable to some future investigator who shall attempt the enterprise, whilst they throw light on several points of the history.

1. In order to visit the cave, time, a good guide, and ropes, must be provided.

2. It is impossible for the flocks and herds to have been carried into the cave. The wonder is how the women and children reached it.

3. No army, however well equipped, could for a moment think of scaling the precipice, defended as it was by so large a body of men.

4. That nothing but a sudden panic could have given success to the stratagem of the renegade Palud.

There is, however, hope for the Val Louise. Great desire has been expressed for the circulation of the Scriptures, and our colporteurs do not visit these mountains in vain. It is not long since one of the priests was severely taken to task by his parishioners for having impeded and abused a colporteur in the sale of Bibles. And yet many of these mountaineers, men and women, have no other clothing than the skins of goats and of sheep. If I were to judge of the priests by the specimen we found in the auberge at Val Louise, we might be thankful that the pulpit remained silent, and earnestly pray for the day when the truth might *again be spoken* in it.

W. R. F.

The Rock-Goat. (Capra Nubiana.)

THE BEDEN, OR WILD GOAT.

(*Capra Nubiana.*)

MANY of the ruminating animals are quite at home among rocks. In such places

> "The dingy kidling with its tinkling bell
> Leaps frolicsome, or old romantic goat
> Sits, his white beard slow moving."—COLERIDGE.

Few animals seem more at ease in almost inaccessible spots than sheep. In Shetland we have seen many of these gentle creatures dotting, with their white fleeces, the rocks of the far-famed Fitful Head, venturing, by dizzy paths, towards little patches of grass, which seemed to hang over the constantly boiling and roaring race of waters known as "the Roost of Sumburgh." The Rocky Mountains have at least two species of the race which find their food and shelter among precipices.* The Llama and Alpaca of the Chilian Andes are sure-footed among slippery rocks. The Chamois of the Alps ventures among places with so little foothold, that no creatures, unfurnished with wings, would seem to be there secure. The Aoudad of Morocco, a formidable goat with a long beard and shaggy mane, looks down defiant from his fastness, high in the Atlas Mountains. More than one species of antelope frequents the mountain-peaks of Southern Africa: one is called by the Boors the *Steenbok* (or Rock-goat), from its favourite abode. In Asia there are several of the goat and antelope families, such as the Goral and Thar, which live on the sweet herbage which

* The "Big-horn," or *Caprovis Canadensis*, is one of these.

they pick up among the precipices of the Himalaya, and to which they fly when pursued, "rushing with fearful precipitancy down the steep mountain."*

On the most precipitous parts of the loftiest Alps of Savoy and the Tyrol there is still to be found a ruminating animal which far surpasses the famed Chamois in size and in agility. This is the Ibex, or Bouquetin (*Capra ibex*), a quadruped which gets scarcer and scarcer every year, and which Dr. Girtanner in 1786 said, would soon, like the Mammoth, be numbered among the extinct mammalia.† At one time it was scattered over Switzerland, but in that country it is said that you can no longer find

"Wild goats sporting round the eagle's nest"

amid

"Living flowers that skirt the eternal frost."

The Ibex is described by travellers, as being able to ascend the most perpendicular precipices in a few leaps, provided it can find the slightest projection on which to rest its feet, and from which to take a fresh spring.

Bochart has given a learned dissertation on the animals known to the Hebrews by the name of *Iaal*, or *Iaalah*, and which in our excellent version of the Bible is translated "wild goat."‡ With his usual sagacity, he regarded this creature as the European Ibex; but in the year 1823 Messrs. Hemprich and Ehrenberg travelled to Mount Sinai, and with the aid of the Arabs, having procured ten

* Hodgson, quoted in Dr. Gray's Catalogue of Mammalia in British Museum.

† Observations sur la Physique, t. xxviii. pp. 225–227.

‡ 1 Samuel, xxiv. 2: "Saul . . . went to seek David and his men upon the rocks of the wild goats." Psalm civ. 18: "The high hills are a refuge for the wild goats." Job, xxxix. 1: "Knowest thou the time when the wild goats of the rock bring forth?"

specimens of different ages, they have satisfactorily shown that the Asiatic species is distinct, and they have figured and described it under the name of *Capra Sinaitica.** The Bedouin Arabs of Sinai call it *Bedden*, or *Sehd*, and the female *Anse sehd.*

When journeying among the valleys which indent the mountains of Sinai, these travellers frequently saw herds varying in number from four to twenty. They were usually observed walking slowly over the highest and most rugged rocks, or quietly looking down on our German naturalists, as they threaded their way in the valley. Each of these herds was attended by a male, who could easily be distinguished by the length of his powerful horns. The Arabs told them —and the same story is related of the European Ibex—that if by accident the male falls from the top of a precipice, his horns so defend him, that he seldom meets with an accident; and, when hard pressed, and no other mode of escape remained, they have been known to jump headlong down a precipice of fifty feet and more with impunity.† It requires great cunning on the part of the huntsman to surprise them.

Approaching Mount St. Catherine, Burckhardt saw a small flock feeding among the rocks. One of his Arab attendants left the party, and by a circuitous road endeavoured to get to leeward, and near enough for a shot. The party sat down, so as not to alarm the wary creatures, and watched the success of the sportsman. He nearly reached a favourable spot behind a rock, when the herd suddenly took to flight, and disappeared. It was impossible for them to have seen the Arab, but they must have smelt him from a

* Symbolæ Physicæ. It was previously figured and described by F. Cuvier and Geoffrey St.-Hilaire under the name of *Capra Nubiana*, and it is so named in the British Museum.

† Burckhardt, "Travels in Syria," p. 405.

change in the direction of the wind. They are most easily surprised early in the morning, when they feed, and it is at such times that the Arabs make long circuits to come on them. The leader, who is always on the watch, whenever he smells,* hears, or sees anything suspicious, makes a noise, — a signal understood by his followers, who quickly make their escape. Like other game, they must decrease, for Burckhardt was informed, that fifty years before his journey, if a stranger visited the tent of an Arab, and the owner had no sheep to kill, he took his gun and went in search of one. But even in Burckhardt's time (1816) they were far from rare.

M. Léon Laborde speaks of this fine inhabitant of the mountains,† as imparting, to the whole of the wild country which it tenants, a kind of animation, which well associates with its character. He watched one of his Arab followers, who had detected a herd of these creatures, pursue his game by making long and cunning *détours*, taking advantage of every rock to conceal his person, and of every cleft to approach nearer. He had taken off his clothes that he might not be impeded, and before starting gave directions to our traveller to rise and shout, if the mountain goats should try to escape on his side. He got near them, and shot one. In about half-an-hour it was cut up, and its liver and heart, roasted on some lighted brambles, served for their supper. It was a female with a kid. The latter he secured and tried to rear, but before he could find a goat to feed it, the poor little creature died.

Their flesh is excellent venison. Their skins are converted into water-sacks; from their horns the Bedouins make rings, which they wear on their thumbs. On the

* See Robinson's "Researches," i. 117.

† His English translator has rendered this name "Gazelle." See "Journey through Arabia Petræa to Mount Sinai," p. 245.

horns of one male as many as twenty tubercles have been counted; and Burckhardt mentions one pair which, measured along the curve, were as much as three feet and a half in length. These horns are carried by the Hebron merchants to Jerusalem, where they are worked into the handles of knives and daggers. On some of the curious bronze dishes discovered in the ruins of Nineveh are figures of the Ibex; and on a painting at Thebes* is a vase very elegantly shaped, and with a lid, the ornament of which appears to be the head of this very species.

We may add, that the word translated "roe" in Proverbs, chap. v. ver. 19, is in the Hebrew *Iaalah;* and evidently refers to the female of the animal we have been describing. The excellent annotator in Bagster's "Comprehensive Bible" well remarks, that in the verse cited Solomon compares a faithful wife, "first to the *hind,* or female deer, accompanying its mate in the forest and in the plains, amidst verdure and fertility; and, secondly, to the *female Ibex,* faithful to its associate on the mountain crags and amidst the dangers and hardships of rocks and precipices." The wild goat of Sinai has much shorter hair than the European Ibex. The legs, too, are more distinctly varied with blackish brown and white than in the species referred to. A. W.

* Monumens de l'Egypte, by Champollion the Younger, Plate 191.

SCRIPTURE ETHNOLOGY.

THE EGYPTIANS.

ETHNOLOGY is the description of human races, or of the numerous tribes of mankind, that make up the nations, peoples, and social communities of this our world. Under the title "Scripture Ethnology" it is our purpose to give a brief description of the various nations, peoples, and tongues, of whom mention is made in the Bible; and in carrying out our design, we shall usually invite the reader's attention, first, to the structural peculiarities of the race under consideration, *e.g.* the form, stature, colour of the skin, aspect of the countenance, shape of the head, character of the hair, &c.; secondly, to their habits; and thirdly, to their modes of communication, that is, their languages, written or spoken.

We begin with the Egyptians, on account of their close connexion with the patriarchs of the Jewish people. Indeed, we are told that the first patriarch, Abraham, the son of Terah, had transactions with them very soon after he was selected from all his contemporaries to become the head of the Hebrew race, and was commanded to go forth from his own country. In the same chapter of Genesis in which this honourable distinction is recorded, it is stated, that "Abram went down into Egypt to sojourn there; for the famine was grievous in the land." Besides this, the handmaid of his long childless wife Sarah was an Egyptian woman, "whose name was Hagar;" and she, with his wife's consent, becoming his concubine, and bearing him a son, his first-born child had thus Egyptian blood flowing in his veins.

Egypt was at that time an agricultural country, and the mode of life of the Hebrew patriarch was eminently, if not

exclusively, pastoral; but the reception he met with amongst the Egyptians was at once welcome and hospitable. The sovereign of the district in which Abraham sojourned was named Pharaoh,— a title given to the kings of Egypt so far down as the sixth century before the birth of Christ.

Throughout the three thousand years and upwards, during which its history has been known, Egypt has retained pretty nearly the same geographical boundaries. As in the days of the earliest Greek travellers, so now Egypt itself is little more than a narrow, waving band of territory, subject every year to an overflow of its enriching river. On the north bounded by the Mediterranean, it extends southward as far as the Cataracts of the Nile. This strip of alluvial land with the Nile running down its midst, and dividing it into two unequal portions of uncommon and extraordinary fertility, is enclosed on both sides by desert.

In the days of Abraham, as we are informed by the sacred historians, this fertile, corn-yielding valley was peopled by a tribe or offshoot from an older ethnological stock, also mentioned in Genesis as emigrating to Egypt from Asia; and all that we learn of them subsequently, either from Scripture, classical authors, or from recent researches, corroborates the statement. Their general physical characters and their well-known habits and modes of life combine to convince us that, in these respects, they far more resemble the inhabitants of Asia than their less civilised neighbours, who inhabited the adjacent deserts, or the regions of Africa lying to the south of Egypt, the Ethiopians and Abyssinians. Nor are the ancient Egyptians less widely dissevered from their nearest Asiatic neighbours, the Arabians; for, in place of the sharp, well-defined features of the latter, with their keen, animated, and lively countenances, and spare and active frames, so thoroughly indicative of vigour and energy, both bodily and mental, the characters of the Egyptians, as

seen in their paintings and sculptures, indicate, as M. Dénon remarks, a race, having full, but delicate and voluptuous figures, with sedate, tranquil, and placid countenances. They have round and soft features; eyes that are long, almond-shaped, half shut, and languishing, turned up at the outer angles, as though habitually fatigued by the light and heat of the sun; their cheeks are round, with thick, full, and prominent lips; the mouth is large, yet cheerful and smiling; and the complexion and colour of the skin are dark, ruddy, and of a coppery hue. Though what we Europeans should designate as a dark-coloured people, and though their abode was in Africa, they were by no means black. Dr. Prichard mentions two old Egyptian deeds of sale lately discovered, which afford a curious testimony. A copy of one of these deeds may be seen in Berlin, and the original of the other in Paris. Although they refer to a period as recent as the reign of the Ptolemies, and therefore long subsequent to the more ancient Egyptians, yet the names of the persons mentioned in the documents show them to have been native Egyptians. The parties to the contract are described according to their external appearance and colour. In one of these documents, the seller, who is named Paminthes, is described as of a dark-brown colour, and the buyer, who is named Osarreres, is denoted by a term which may be rendered yellow, or honey-coloured. Of a complexion universally dark, but not black, there were amongst them great varieties of hue, as is the case among the Abyssinians and the Hindoos in the present day. The features and figures of the Egyptians are well represented in their paintings and sculptures, and these all display a very distinctive and peculiar character of countenance, as well as of bodily conformation. Dr. Morton states that the monuments from Meroë to Memphis present a pervading type of physiognomy, which is ever distinguished at a glance from the varied forms which not unfrequently

attend it, and which possess so much nationality, both in outline and expression, as to give it the highest importance in Nilotic ethnography. It consists in an upward elongation of the head, with a receding forehead, delicate features, but rather sharp and prominent face, in which a long and straight or gently aquiline nose forms a principal feature. The eye is sometimes oblique, the chin short and retracted, the lips rather thinnish, and the hair, whenever it is represented, long and flowing. This style of features pertains to every class, kings, priests, and people, and can be readily traced through every period of monumental decoration, from the early Pharaohs down to the Greek and Roman dynasties.

W. C.

SONNET.

"One star differeth from another star in glory."

From heaven's high centre to the horizon's line
The sky is set with stars, a countless host,
Where lately shone but two or three at most:
Yet still those early few conspicuous shine
With larger orb and radiance more divine.
So, when the Christian starts upon his race,
Some simple doctrines shed the ray benign,
That marks the path his dubious feet must trace:
He journeys on, and, as he journeys, new
And glorious truths surprise him; but the few
He first beheld still keep the foremost place,
And guide, and light, and cheer him to the end—
The Father's love, the Holy Spirit's grace,
And Christ at once his Saviour and his Friend.

W. W. B.

PAPERS ON THE AIR AND SKY.

No. III.

AN AËRIAL VOYAGE.

SEVENTY-TWO years ago, Montgolfier, a paper-maker of Paris, was ascending one of the hills in the neighbourhood of that city, when, looking at the large clouds sailing majestically above his head, the thought occurred to him,—"What if I could harness one of these clouds to a car, or clothe it with a garment, and make it lift me with it into that blue ocean?" Thinking erroneously, but naturally enough, that the cloud was but condensed smoke, he and his brother set about accomplishing the feat; and with the hot gases given off from burnt straw, filled a huge paper bag, and there rose through the unresisting air the first fire-balloon.

The idea of the brothers Montgolfier was soon extended and improved upon. Animals were first sent up, and then adventurous mortals suffered themselves to be lifted into the air by the imprisoned cloud. Even in the same year hydrogen, the lightest of all gases, was substituted for the hot smoke. Presently the French took up ballooning with great zeal, and introduced it into their military tactics, and the battle of Fleurus was gained by means of observations taken from a balloon.

Let us, in imagination, ascend, not emulating the birds on their air-cleaving pinions, but in the only way available to us wingless and heavy-boned bipeds,—dragged up by the imprisoned gas. Let us ascend, not for our amusement merely, but to observe more closely the phenomena of the air and sky, and get material for our third paper. Just so

Gay-Lussac and Biot ascended in 1804; and Welsh four different times in 1852, guided by the veteran Green, who first made use of the coal-gas with which our streets are lighted to inflate his gigantic air-ships. In one of these ascents Welsh attained the height of 22,930 feet, — more than four miles, and nearly as high as the summit of the loftiest mountain on our globe.

As it is on a scientific expedition that we are going, we must take with us all requisite instruments, a barometer, thermometer, hygrometer, electrometer, and anything else we may suppose of service. We must first see that we rightly understand all our instruments.

There is the barometer; it is intended to measure the weight of the air. "What! has the air any weight?" cries, perhaps, some astonished reader, and he becomes almost incredulous when gravely assured that it is pressing with a weight of fifteen pounds on every square inch of his body. A fish would find it difficult to believe that the element through which he is gliding has any weight. The diver, too, when reminded of the pressure of water, would answer, that the water, so far from feeling heavy upon him, actually buoys him up; and yet we all know for a certainty that water has weight, and exerts no small pressure on any vessel containing it. Thus it is with the atmospheric ocean. In both cases, the reason why a body immersed does not experience this pressure, is, that the fluid presses equally on all sides. That air has weight may be easily proved by exhausting a vessel by an air-pump, when it will weigh less than it did when full of air, every hundred cubic inches of air abstracted causing a diminution of about half a drachm (30·83 grs. at 60° F., and 29·92 bar. press.). Many other proofs will the air-pump give of the prodigious force of the atmosphere when not counterbalanced by air at a similar tension; bladders or glass vessels being broken to pieces by

it, and the exhausted receiver fixed so that no one man could lift it. If we immerse the open end of a tube, perfectly empty of air, in any liquid, this liquid will be forced up the tube by the external pressure of the atmosphere. Water will thus be raised even till it form a column of thirty-three feet in height, before its weight counterbalances the pressure from below. Mercury, or, as it is frequently called, quicksilver, will, on account of its greater weight, rise in such a tube only to the height of about thirty inches; and were we to weigh an inch column of water of thirty feet in length, or of quicksilver of thirty inches, we should find both alike to be fifteen pounds. This, then, is the measure of the atmospheric pressure exerted upon a superficial inch. Our barometer is essentially the instrument just described — an exhausted glass tube closed at the upper end and dipping into mercury, the height to which the liquid metal rises, indicating the actual pressure of the atmosphere. Of the barometer, as a weather-glass, we hope to speak at another time.

The thermometer, as every one knows, is intended to measure heat or cold. Advantage is taken of the fact, that bodies, especially metals, expand when heated; and so by placing liquid quicksilver in a glass bulb, and making it as it expands ascend a thin tube of the same material properly graduated, the degree of temperature is easily read off.

We take the hygrometer with us for the purpose of measuring the amount of moisture in the air. This instrument is of very various construction, but it generally depends on determining the dew-point, as it is termed,—that is to say, the degree of cold which is requisite to cause moisture in the air to be deposited as dew. The amount of vapour of water which the air is capable of holding uncondensed increases in a certain proportion as the temperature rises, and this affords the data for the calculation.

The electrometer may tell us something about the changes in electrical condition of the spaces through which we pass. It is essentially two pieces of gold-leaf secured side by side into a short metallic rod, which for the sake of safety is inserted in a wooden frame fitting the mouth of a glass bottle. Our protected gold leaves lying so amicably together under ordinary circumstances will retire from one another with mutual aversion directly they are brought near any object which is in a state of electrical disturbance.

Now the cords which fix us to the earth are cut asunder, and we rise majestically. The earth receding from our view becomes a map full of animated objects beneath us. But we must not delay by looking at the fair and singular prospect; we have little time to spare from our meteorological observations.

It is the weight and pressure of the atmosphere, of which we were just speaking, that are forcing us up; our imprisoned gas is lighter than the air around, and thus we rise, even as a cork would rise through the watery ocean. But our barometer is telling us that this pressure is diminishing; the air is becoming thinner or rarer. We learn the same, too, from the difficulty of breathing we are beginning to experience, like those who ascend high mountains; and from the expansion of the gas in the balloon which necessitates our opening the valve for the escape of some of it, lest the silken envelope should be rent. In about eleven thousand feet of perpendicular ascent the mercury has sunk to only half its previous height. We must not, however, rashly conclude that at double that altitude the air would be so thin as to exert no pressure; we are sure that there is a limit to the atmosphere, but the rarefaction of it proceeds at a decreasing ratio as we ascend, and there are reasons for believing that it extends to somewhere about forty-five miles from the earth's surface.

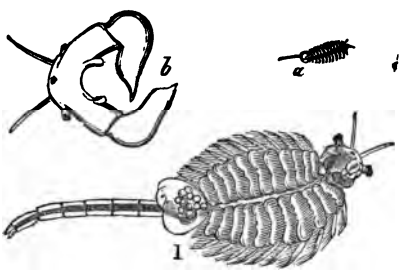
The thermometer, too, is indicating a diminution in the temperature as we rise; so, indeed, are our feelings, making us wrap ourselves in our great-coats. Mr. Welsh tells us that "the temperature of the air decreases uniformly with the height above the earth's surface until at a certain elevation, varying on different days, the decrease is arrested, and for the space of from two thousand to three thousand feet the temperature remains nearly constant, or even increases by a small amount; the regular diminution being afterwards resumed and generally maintained at a rate slightly less rapid than in the lower part of the atmosphere, and commencing from a higher temperature than would have existed but for the interruption noticed." Rising above the region of clouds, we get into a space where the temperature is below the freezing point; and this explains to us why, even in the height of summer, lofty mountains are always covered with snow.

If we have provided ourselves with winged animals, as Gay-Lussac did, we may now let them fly. He tells us, that at the height of 8600 feet a bee was liberated, and flew away humming briskly. A linnet set free at 11,000 feet, before adventuring into the rarefied medium, settled for awhile on the stays of the balloon, and then dashed downwards perpendicularly. A dove, after hesitating awhile, whirled in great circles, and swooped earthward through a mass of cloud.

Floating majestically through the cold, clear air of these upper regions, with the sun shining in unbroken splendour across the deep blue heavens which have never known a cloud, we consider our various observations with the hygrometer, and also upon the mists through which we have passed; but these require much arrangement, and before we give the results of them we must descend to *terra firma*, and *gain some* breathing time. J. H. G.

THE LYMINGTON BRINE SHRIMP,* AND THE FEZZAN WORM.†

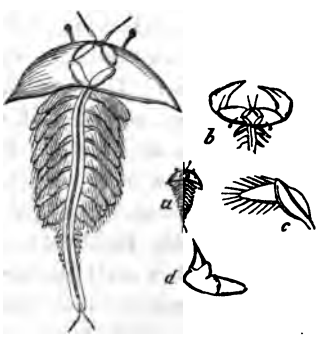
In the reservoirs belonging to the salt-works of Lymington, in Hampshire, there occurs in great abundance a very pretty little animal belonging to the entomostracous crustacea, somewhat resembling a minute shrimp. In 1755 Dr. Schlosser, a German naturalist, visited these salt-works, and upon examining the salterns was surprised to observe the whole cistern tinged of a red colour. The liquor which was contained in the cistern, was the brine previous to its being boiled, and contained nearly a quarter of a pound of salt to a pint of water. He soon detected the cause of the colour. It depended upon the presence of an immense number of small animals of a reddish hue. In this strong, concentrated solution of salt, which is sufficient to kill almost every other living animal, these little creatures were sporting about in all the enjoyment of existence. They are very slender, linear in form, and do not exceed from a quarter to half an inch in length. Their head is furnished with two horn-shaped appendages, and on each side of the body is a row of foliaceous-looking feet, eleven in number. "There is nothing," says Joly, another observer, "more elegant than



* *Artemia salina*, fig. 1.

† *Artemia Oudneyi*, fig. 2. The figures marked *a* are the natural size. The other figures are magnified representations of the several parts.

the form of this little crustacean; nothing more graceful than its movements. It swims almost always on its back, and by means of the fins of its tail, it moves rapidly in all directions through the element it inhabits. Their feet are in constant motion, and their undulations have a softness difficult to describe." The workmen at the salt-works believe that these little creatures are very useful, from their incessant motion, in causing the liquor contained in the cisterns to clear; and they often transport some of them from one saltern to another, in order to have a supply for that purpose. These elegant little animals when taken out of the water and placed in spirits of wine, are nearly white; and it has been lately proved that their red colour depends upon the presence in the water of myriads of an exceedingly minute infusorial animalcule, a species of the genus *Monas*, which is of a red colour, and forms the principal food of the brine shrimp. This interesting crustacean belongs to the genus *Artemia;* and the species above mentioned is the *A. salina.* Several other species have been described, all residing in salt marshes or ponds abounding in salt. The late Dr. Oudney, in his travels, along with Major Denham and Captain Clapperton, into Northern and Central Africa, gives an interesting description of a species he observed in Fezzan. "Monday, July 8, 1822," he says, "we entered the Wady Trona early this morning. Near where we entered there are a cluster of date-palms, and a small lake from which impure trona (*saltpetre*) is obtained. It is



about half a mile long, and 200 yards wide." The scene which here met his view seems to have made a great impression upon the traveller. Clapperton, he tells us, was sitting on the top of a high sand-hill, and so pleased with the view that he called out several times to him to dismount from his camel to enjoy the treat. The appearance was beautiful. A deep sandy valley lay spread out below them, and though its sides were dry, bare, and without vegetation, it contained in its bosom two large groves of date-palms, within each of which a fine lake was enclosed—an oasis in the Desert. All around was dreary, hot, and dry, but here the beautiful date-palm tree rose majestic, and the cool water of the lake rippled in the breeze. It was in these lakes, highly charged with saltpetre and muriate of soda, or common salt, that the little Artemiæ resided.

They occurred in immense numbers, were well known to the natives as the Fezzan worm, and highly prized by them as an article of food. They are most abundant in the spring, though they are to be found at all times, and appear on the surface in particularly large quantities during high winds. The natives fish for them with a long hand-net. A man wades some way into the lake, and after allowing the net to remain some time at the bottom, it is taken up, or drawn a little along the ground, and in this manner several pints are sometimes caught at one time. They are placed in the sun's rays for a few hours to dry, and in that state sell at a high rate in the different towns in Fezzan. These little crustacea have been observed by a more recent traveller in the same country, Dr. Vogel, who was despatched in the beginning of last year to join Dr. Barth, now conducting the African expedition, by orders of H.M. Foreign Office. He has sent home a drawing, made by himself on the spot, of the Fezzan worm, which he calls the Dūd, and which corresponds well with the description given by Dr. Oudney.

Dr. Vogel says, "The colour of the worm is reddish, and exactly the same as that of the goldfish. In swimming, its movements resemble those of a serpent, and its feet are constantly paddling very quickly. It has eleven or twelve feet on each side. During the daytime the worm retires deep into the lake, and only appears on its surface in the morning and evening. They are caught in cotton-nets, in which are hauled up at the same time innumerable flies and other insects with which the lake is filled. The whole is mixed with a red kind of date and made into a paste, which has a similar smell and taste to that of salt herring, and which is used by the inhabitants of Fezzan in the place of meat, along with bazeen and other puddings."

This species, which has never been named, we propose calling *Artemia Oudneyi*, in honour of its first describer, Dr. Oudney—a slight tribute to the memory of a traveller who laid down his life in the cause of African discovery, and one which we feel sure Dr. Vogel will recognise with pleasure. The length of a full-grown Dūd, according to Dr. Vogel, is $3\frac{7}{11}$ths of a Paris line, and the breadth close under the head, $1\frac{3}{11}$ths of a line.

For the annexed figure and above-quoted remarks, we are indebted to the kindness of Mr. Augustus Peterman, Physical Geographer to the Queen. They were contained in a letter to him from Dr. Vogel, and politely placed at our disposal.

Dr. Vogel is by profession an astronomer, and was for two years assistant to Mr. Hind; but his enthusiasm for the cause of science impelled him to undertake his present perilous expedition. In addition to astronomy, Dr. Vogel is an excellent botanist, and no doubt other branches of natural history will receive his attention. Interesting news may, therefore, be daily expected from Lake Tchad.

W. B.

ALL ABOUT RUSSIA.

EVEN in this age of Hand-books there is one sort of manual for which we have sighed in vain. We mean a set of monographs devoted to the different nations of Europe, and which would give us a vivid idea of the physical geography of each country, its national productions, its inhabiting races, its crafts and its commerce, its civil and religious history. At present we want to know "all about Russia;" but, in order to get some notion of its geology and surface,—the anatomy and the aspect of its enormous area,—we have to hunt all through the ponderous tomes of Pallas, and Clarke, and Murchison. For its natural history we must glean such hints as are scattered through a hundred books of travel. For the strange and eventful story of its Czars, we are driven to the dreary annals of Levesque and Karamsin. And whilst despairing of any account, succinct and simple, of the various races bound together in its rusty conglomerate,—for some idea of its present resources, material and military, we must plod through the dry, but elaborate, statistics of Haxthausen, Schnitzler, and Tegoborski.

We hope the reader will thank us if, in our next numbers, we give with all possible brevity the chief results of our own researches.

The best training for these Russian explorations is to accustom the mind to ideas of vastness. It is easy to say that Russia extends from the 18th to the 190th degree of Eastern longitude, and from the 38th to the 78th degree of Northern latitude; that its average breadth is 1500 miles, and its length 6000; and that its area includes a seventh part of the terrestrial surface of the globe. But these

figures are mere phantasms till once we reduce them to some known standard of comparison.

The Thames, from its source to the Nore, is 205 miles long. The Volga is exactly ten times longer; and at the rate of 20 miles a-day, it would require nearly seven months to travel from its mouth to its source and back again to Astrakhan.

The area of Great Britain is nearly 84,000 square miles; but in Russia there are steppes, or natural flats, so vast that just as you might place on a salver a tea-cake and a garnish of biscuits round it, so you might place on one of the grassy or sandy salvers near the Caspian England and Scotland entire, and throw in, by way of comfits or bon-bons, all the adjacent islands. In so doing, you might not crush a single tree nor entomb so many inhabitants as the population of an English burgh.

On the other hand, there are forests, so large that, were Briareus to lift a sod from the Ural, he might bury all France beneath a turf of unbroken pines. They say that a squirrel could travel from Moscow to Petersburg without ever touching the ground.

Were an Icelander to travel as the crow flies from the foot of Mount Hecla to Venice, besides a vast extent of ocean, he would pass over the North of Britain, and in his Continental transit would visit Holland, Prussia, France, Baden, Würtemberg, Austria. But should a Russian subject, much farther north than Iceland,—should a Laplander or Samoide be ordered off to a hot climate, he might find his way to Sebastopol or Simpheropol, farther south than Venice, without crossing an arm of the sea or ever quitting the *terra firma* of the Russian territory. If the journey could be performed by magic, in the morning he might gather a few tufts of white lichen to feed his favourite reindeer, and after breakfasting on train-oil and sawdust, he himself might rise through the snowy atmosphere, and in the evening come

down among the camels and the orange-groves of the Crimea. There he might unpack from their native ice the salmon and the capercailzie which he had yesterday secured as presents for his friends; and after a supper of grapes and pomegranates, might go to sleep at the open lattice, or in the coolest apartment he could find.

Or, conversely, were a Circassian falling under the displeasure of the Czar, and spirited off to that great limbo where all the patriotic are lost and forgotten, in the outset of his journey he would pass through jungles where the wild ox, the lynx, and the tiger-cat still range, and where serpents lurk amongst the rankness of a vegetation almost tropical. By-and-bye he would come out on those mighty steppes, whose monotony is here and there broken by a flock of fat-tailed sheep, or a troop of wild horses, or at least a flight of fishing pelicans, and where the wine of the Caucasus is replaced by the sour mare's milk of the Tartar tent. Steering still northward, perhaps he would cross the Ural at Ekatarinburg, and admire the superb masses of malachite there dug from the mountain; and threading his way through awful forests, the haunt of the bear, the wild boar, and the eagle, at last he emerges on Tobolsk. But most likely he is not allowed to linger among the favoured exiles who in summer look out on its green meadows and birch-groves; but, "onward, still onward," towards some Siberian fort or mine he flies in his fated sledge, till he has bid a final farewell to everything warm and beautiful.

"Cold! cold! there is no sun in heaven,
A heavy and uniform cloud
Overspreads the face of the sky,
And the snows are beginning to fall.
All waste! no sign of life
But the track of the wolf and the bear;
No sound but the wild, wild wind,
And the snow crunching under his feet."

Or, setting out from his palace at Petersburg, and keeping on the same parallel of latitude, the emperor himself might post in an unbroken line for nearly six thousand miles on his own dominions, and after crossing Behring's Straits, might resume his route, and for many hundred miles still find himself on Russian territory.

His enormous size gives the Russian strange neighbours. With Austria in front, and the north pole in the rear, his bulky shadow falls as far as Italy, and may well make the Lake of Como shiver. On the one side the land of Gustavus and Charles XII. gives him the cold shoulder; whilst on the other side he consoles his unaccustomed palate with the honey of the Chersonesus and the sherbet of Persia. One foot rests on the birth-land of Kant, and the other on the home of Confucius; and so long is his arm that the letter handed to him by the British settler in Canada he might almost undertake to convey direct to his brother in Calcutta. In other words, betwixt British America and British India hardly anything intervenes which is not Russian.

According to M'Culloch, in 1846, the area of the Russian empire contained 7,293,850 English square miles. But England and Scotland united have an area of only 88,050 square miles; France, including Corsica, 203,736 square miles; and the whole of Europe, 3,650,000. Therefore Russia has a superficial extent ninety times greater than Great Britain; thirty-six times greater than France; and exactly the double of all Europe united.

REVIEW OF THE MONTH.

PARLIAMENT opened on the 31st of January; and should Ministers succeed in carrying their proposed improvements, a prodigious accession will be made to the worth and well-being of our favoured nation. To say nothing of the cost which will be saved by transferring cases of disputed wills from the ecclesiastical to the civil tribunals, and the impulse which is likely to be given to industry by altering the Law of Settlement, the contemplated changes in the civil service, and the provisions of the new Reform-bill, hold out a noble premium to intelligence and good citizenship. The graduate of any British university, or the man who has had fifty pounds in the savings' bank for three years, is now to be created an elector; and instead of appointments in the Customs and other Government offices being awarded to parliamentary patronage, they will be bestowed on the most qualified candidates. It is also to be hoped that the session will not close without something being done for the better education of our people.

To these and similar measures of internal reform, there is added a feature of moral grandeur in the circumstance that they are introduced at the moment when this country is sending forth nearly a hundred ships-of-war to repel barbaric aggression and to maintain the balance of power in Europe.

A discovery, which may prove of great importance in the arts, has been made by M. Sainte-Claire Deville, of Paris. He has found a method by which it is hoped that aluminium, the metallic base of alum and all the argillaceous earths, may be obtained in large quantities. Alumi-

nium is a metal of silvery splendour, and it retains its brightness in air and water. It is exceedingly ductile, and is one of the lightest of metals, having a specific gravity of only 2·56. As it is not acted on by sulphuretted hydrogen, it will make excellent egg-spoons, and it will remain untarnished in our gas-lit apartments. Should the process of reduction be cheap, there need be no end to the supply: seeing there is an ample mine in every brick wall and kitchen-garden.

On the 27th of January died at Durham, the venerable Master of Sherburn Hospital, the Rev. George Stanley Faber. He had reached his eightieth year. His "Difficulties of Infidelity," and of "Romanism," have been his most popular publications; but his "Mysteries of the Cabiri," his "Origin of Pagan Idolatry," and his "Calendar of Prophecy," are all works of vast erudition and enduring value.

The Lectures to the Young Men's Christian Association are concluded; and on the whole they have been the best course ever given. Mr. Hugh Miller's "Two Records: the Scriptural and the Geological," was not only an original, and, as we think, a successful reconciliation, but it was a charming sketch of the geological domain and its great successive dynasties. Dr. C. J. Vaughan's "Cicero" we have just perused, with much admiration of its noble sentiments, and with longing that we could breathe more frequently that classical atmosphere, whose exquisite afflatus is wafted to our spirits in this truly Tusculan discourse. Dr. Candlish closed the series with a review of the theological system propounded by Mr. Maurice, and we are happy to hear that it is his intention to publish a detailed examination of Mr. Maurice's "Essays."

Thanks to the zeal of its publisher, we perceive that a new book of Travels in Syria has reached a second edition.

But we question if in his jaunty pages many readers will discover M. de Saulcy's "Discovery of the Site of Sodom and Gomorrah." They will be of service, however, if they lead some careful and sagacious man, like Robinson, to a more accurate exploration of the Dead Sea border.

Dr. Joseph Hooker has published, in two profusely illustrated volumes, "Notes of a Naturalist," being his Travels among the Himalayas and Khasia Mountains. We have not had time to read them yet; but from the high standing of the author and from the rich accessions to science which rewarded both his Antarctic and Indian researches, we expect a great treat in their perusal.

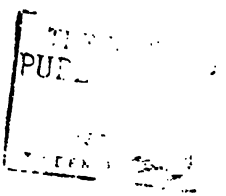
We are already old enough to be entitled to introduce some younger contemporaries. Of these "The News of the Churches" will be to some of our readers the most welcome. Its object is to supply a monthly abstract of the missionary intelligence and the internal occurrences of the British and Continental Churches, giving the essence of all the denominational newspapers and magazines, and supplementing these from the information of private correspondents. It has made a good beginning. "The Christian Annotator" is the plan of the admirable "Notes and Queries" transferred to theological literature; and it promises to furnish a much-desired medium of intercommunication to students of Church History, Biblical Criticism, and kindred subjects. In the numbers which have already appeared, several interesting points have received a valuable elucidation. "The Museum of Science and Art" is a most successful attempt to bring within every one's reach the wonders of Natural Philosophy.

Judging by the sermons and pamphlets which come in our way, the table-turning mania is not yet extinct. On the principle of the Scottish proverb, "timber to timber," we can understand how, when certain people and certain tables lay their heads together, there should be a powerful sym-

pathy; in other words, when two wooden heads come together, we expect some striking result: but we were not prepared for this talking. Nor can we understand how demons should find their way into innocent rose-wood through the finger-tips of Oxford graduates and lovely young ladies. Had the mediums been blacklegs or Norwood gipsies, our difficulty would have been greatly diminished. In the meanwhile, the grave treatment which this matter has received throws light on mediæval superstition; and no one need wonder that witches were burned by Sir Matthew Hale who finds modern clergymen ascribing these tricks to Satanic agency.

At present there is an interesting controversy waging amongst the Jews of England. The Talmudists, including Sir Moses Montefiore, wish to exclude from the Board of Deputies members of the Reformed or Biblical Synagogue: but a party, almost as numerous, and including the Rothschilds and Alderman Salomons, voted for their admission. This circumstance shows that the party which adheres to the Old Testament as the only text-book of the Hebrew faith and practice, is gaining ground.

Through private letters from Geneva, we are happy to find that a good work is in progress there. The distribution of tracts and meetings for reading the Scriptures have awakened a spirit of inquiry among the Romanists, and numbers are now receiving regular instruction from Protestant pastors with a view to the public renunciation of Popery. It is expected that about a hundred persons will be received into the Reformed Church in the course of the present month.



Lady Franklin's Ship "Isabel" surrounded by the Ice in Baffin's Bay.

ARCTIC ENTERPRISE.

BAFFIN AND INGLEFIELD.

QUEEN ELIZABETH had lain for three years in Westminster Abbey, and the quiet Shakspeare was yet to live ten years, when William Baffin started from Gravesend for the Arctic regions. His ship, the Discovery, was chartered with instructions to reach the north part of Japan, and with these directions, "We would have you to bring home one of the men of the country; and so, God blessing you, with all expedition to make your return home again." On this "North-west Passage," William Baffin, as pilot, took the command of the small barque, with a complement of seventeen officers and men, and sailed from the Thames on the 26th of March, 1606. They sighted Greenland on the 14th of May, within Davis's Straits. On the 2d of July they reached "a fair headland," which they named Sir Dudley Digges' Cape, after one of the merchant-princes of London, deeply interested in Arctic enterprise. Twelve leagues further on "a fair sound" was discovered—the Wolstenholme Sound, lately celebrated as the winter-quarters of H.M.S. North Star, part of the crew of which died there, and "rest" on its shores "until the resurrection." Baffin,—a practical man, like that other Baffin, William Penny of Peterhead,—notices, that this Sound has many inlets or bays *well adapted for whale-fishing*. "Fair" as the bay was, like another more celebrated "Fair-haven," Wolstenholme Sound, with its islands in the centre, was "no proper place to winter in;" and our navigators in these sulky seas, encountering a great storm on the 4th of July, lost their "fore-course" at its outset, and the gale continuing

to blow, the pilot took in all sail. When the good providence of God brought a calm, the Discovery was in Whale Sound, a place ere long likely to be well known to our enterprising sailors; for, doubtless, whales still abound in it, and will abound, till—timid monsters!—they be disturbed by man.

Our grateful mariner now sees to his discomfort an ice-field backed with land. He tacks the Discovery, and sights Hakluyt's Island, so named after that model of an amiable and useful enthusiast, whose memory has lately been revived by the formation of the Hakluyt Society. Another great Sound, Sir Thomas Smith's Sound, is discovered, running to the north of 78°, and marked by Baffin as "admirable in one respect, because in it is the greatest variation in the compass of any part of the world known; for, by divers good observations, I found it to be above 5 points, or 56 degrees, varied to the westward, so that a north-east by east is true north, and so of the rest." On the 8th Carey's Islands are named; and on the 10th the Discovery is at the entrance of a fine Sound, Alderman Jones's Sound, now surveyed, as to its mouth, by Captains Austen and Inglefield, though its fine sonorous civic name be lopped in these reforming days of a most important part of a Lord-mayor's dignity. Jones's Sound is a spacious channel, to all appearance washing the north coast of North Devon, as Lancaster Sound and Barrow's Strait do its southern.

Dr. Sutherland has recently proved that it does not run into Prince Alfred Bay (a bay really existing, although with its low coast Capt. Sir Edward Belcher saw no appearance of it as he steamed rapidly past it into new ground);* and to us this Sound appears extremely important.

* Our most distinguished Hydrographer, Admiral Sir F. Beaufort, has in his last map diminished this indentation, named after one of our Queen's lovely children. We know Dr. Sutherland to be so minute an observer, and

After looking at our friends the "sea-morses," and regretting there was no sign of inhabitants, on the 12th July, 1606, Baffin discovered Sir James Lancaster's Sound, that important channel to the Northern Ocean, where Parry, in August 1819, acquired the renown of being the ablest of modern navigators. After this, Baffin returns home, and, strange to say, his journals and charts yet lurk in some repository, unknown to geographical archæologists, who would gladly ferret them out, and write the history of one, whose earthly honour it is to have his name inscribed on, perhaps, the largest sheet of water which bears the name of a mortal man.

Baffin's Bay has often since been visited; but the latest and most important explorations have been made by Captain Inglefield, in Lady Franklin's ship, the Isabel. Of these full details will be found in the Captain's "Summer Cruise;" but, in the meanwhile, many of our readers will be gratified with the following brief *resumé* of his discoveries, with which he has kindly favoured us. In a few weeks Captain Inglefield will set sail for Baffin's Bay in H. M. S. Phœnix; and his return will be awaited with lively interest. Already as an Arctic navigator he has earned a reputation only second to that of Sir Edward Parry and Sir James Clarke Ross.

so strictly accurate a man, that the narrative of his travelling party may be literally believed. Any physical geographer can see that such a bay is likely to exist at that part of Wellington Channel, from the currents of the Queen's Channel and North Channel, with their vast quantities of ice, abrading the low and loose shingly coast. We direct geographers to this fact and to the corresponding bay lower down, named Baring Bay, evidently the result of the abrading powers of the water and ice of the Queen's Channel pouring through Mid Channel and Maury Channel (the South Channel of the able Penny). We dwell on this important point, for we feel sure that Sir Roderick Murchison, Sir Charles Lyell, or our friends Messrs. Ramsay and Jukes, would have theoretically deepened the indentation of Prince Alfred Bay. The return of Sir Edward Belcher, or at least of his charts, will possibly *demonstrate Dr.* Sutherland's accuracy and the existence of *this important bay.*—*A. W.*

Steam Yacht Isabel, off the Orkneys, Nov. 10th, 1852.

My dear W——,—You asked me, on my departure from these shores, to supply you with a short account of my voyage; and though my time is still very much occupied, I nevertheless take my pen to comply with the request you then made.

You will remember we sailed from England on the 10th of last July, and though very deeply laden with coal and three years' provisions, yet managed to make a good voyage as far as Cape Farewell; there we encountered (as mariners at that point seldom fail to do) a heavy gale from the north-east; and so furious was the tempest, that it became needful to lay the vessel to, and at one time I seriously contemplated lightening her of her deck load.

When the gale moderated, we spied the land on our starboard beam, and the wind shortly after chopping round, we made sail in the direction of Cape Desolation.

The appearance of the land about Cape Farewell is bold and rugged, and seemed quite to partake of the character given by Greenland sailors to the weather always experienced off its inhospitable shores.

At 2 P.M. of the 30th we first sighted land, and ere 8 P.M. of the same afternoon we were into the thick of the ice, which is always found drifting off the Cape; and now I found the great advantage we possessed in having a screw, for we threaded our way amongst the floe pieces, and in narrow lanes, regardless of the wind, which had now fallen very light. Large icebergs were seen for the first time by us; and these vast ice-islands filled us with awe and surprise at their frightful dimensions: occasionally we were surprised at seeing one turn over, and another fall to pieces with a report like a park of artillery. On the 7th of August heavy weather obliged us to put into Fiskernas, where we remained till the gale moderated. I cannot now enter into a *description* of this place, but whenever you like to peruse

my journal, it is at your service, and you will find a full account of all our adventures.

A gale from the south-east prevented our going into Holsteinbourg, I therefore determined to look into Lievely at Disco; and on the 12th we put into the snug little harbour of Godhaven, where we only remained a few hours, as I felt our time was precious, and I was unwilling to lose a moment of the navigable season.

We touched at Upernavik to obtain some dogs and a few supplies we were unable to obtain at Lievely, and then passed at once on to Melville Bay, which we entered on the 18th. In three days we made Cape York, which we found surrounded with ice. Here I killed the first bear we had seen, and but for a Colt's revolver, with which I had luckily provided myself, I should have suffered some damage from the furious beast.

We closely examined the coast to Wolstenholme Sound, which we entered, and landing, found the graves of the men that had died whilst the North Star wintered there in 1849. An Esquimaux settlement, which had been temporarily deserted, was closely searched for traces of our missing countrymen.

Whale Sound was entered on the 25th; and now commenced our discoveries, the Admiralty Charts supplying us with no certain coast-line beyond Cape Parry. A group of islands on our larboard hand, as we went in, was the first discovery we made, and to these I gave the names of two of the Lords of the Admiralty and some of my friends,—patrons of the Expedition.

Here we discovered a tribe of natives, who, judging from their surprise at our appearance, had never before beheld Europeans. I landed at their winter habitations, and walked with them to their tents, a mile distant. They showed much pleasure at our visit; and we found difficulty *in getting away from* the settlement. A few presents of

spear-heads (iron), and some knives, files, and needles, were a source of much delight to them.

We could not remain here long, as fair weather and open water at this time of year could not much be reckoned on; I therefore embarked, after ascending an eminence about 1000 feet in height, to take a sketch, and form some idea of the trending of the coast-line.

Passing between two of the islands I named Northumberland and Herbert Island, we steamed away to the northward, and soon sighted Cape Alexander, which we found to be considerably farther north than the position assigned to it in the Admiralty Charts.

I was much surprised on finding, too, a large strait, upwards of thirty-five miles in width, instead of the small opening of ten miles which had before been given as Smith's Sound. I determined to push on as far as possible, and ere midday of the 25th had penetrated some distance up the Sound. A gale, however, setting in right in our teeth, obliged us to run out and heave to, and thus we remained for nearly twenty hours in a furious snow-storm, and amongst huge bergs and floe ice that made it far from agreeable.

The gale moderating on the 29th, I contemplated returning up Smith's Sound, which we had already penetrated to lat. 78° 28′ N., but the ice had now begun to drive out in such a manner, it would have been madness to have attempted it. I thus relinquished the idea, and contented myself with the remembrance that we had penetrated 120 miles farther north than Ross's most northern point.

A fog set in when the gale subsided, and thus we did not perceive that we were nearing a large field of ice, which was fixed upon the western shore. Our boiler at the time being *hors de combat*, I found that we should inevitably drive into this field, and ordered it to be secured in the quickest way; but ere this could be done we were completely *surrounded*, and soon placed in a most perilous position.

The little sketch I send you shows this; and I can assure you, but for the timely assistance of our engine, I fear we might have met with our end. A good Providence, however, protected us on this as on many other occasions, and after some hours of toil and anxiety we succeeded in liberating our little vessel and steaming into open water.

I have already made this letter too long, so I must only briefly tell you that on the 31st we entered Jones's Sound, and on the 1st of September succeeded in penetrating to longitude 85° 20′ W., when thick fog and strong westerly winds obliged us to withdraw; and after securing by angles and drawings (which I had done of all our discoveries) the outline of the coast, I determined on going up Lancaster Sound, and reached Beechey Island on the 7th, where I found the North Star at anchor. I soon delivered to them the letters and despatches I had brought out; and after remaining a few hours made the best of my way out of the Sound. After some Arctic adventures, such as befall the mariner in these seas daily, we succeeded in getting through the middle ice in Baffin's Bay; and then, after encountering a series of gales (I think the heaviest I ever beheld), we rounded Cape Farewell on the 21st of October, and enjoying a stormy voyage across the Atlantic, reached Peterhead on the 10th of November, the very day four months we had sailed from it.

I hope this short sketch of my yachting voyage in the Isabel will interest you; and when you remember that I started from England three months after the Government had despatched their expeditions, and that I carried the voyage out at my own risk and expense in a great measure, you will not be disappointed, I hope, that I have not more to relate.

Believe me, ever yours, sincerely,

E. A. Inglefield.

ON THE POPULATIONS OF THE RUSSIAN EMPIRE.

No. I.

THE BALTIC PROVINCES AND FINLAND.

We know the magnitude of the vast Muscovite or Russian empire, and we know the enormous portion of the earth's surface that it covers. We know, too, that it is not all Muscovite. All Russia is no more Russian than all the British empire is English. India is one thing, the Hudson's Bay country another. The aborigines of Australia are anything but Londoners. So it is with what we have under notice. The proper Russian population is only a fraction of the Russian power, it may be of Russian weakness: for the populations are varied, mixed, heterogeneous, and, in some cases, repugnant to each other. In such cases there is no relation between size and strength, between weight and bulk. The half, indeed, is often better than the whole.

An ethnological map of Russia in Europe lies before us; each population, with its own proper colour, marked out on its own proper district. Let us illustrate it. It is a map for Russia *in Europe* only, so that it carries us no farther than the Uralian Mountains eastwards, and says nothing about Georgia, Circassia, and the numerous tribes of Caucasus; nothing about the tribes of Siberia, nothing about the Indians of North America and the Aleutian Islands. Neither does it take cognisance of the kingdom of Poland; nor yet pretend to any Russian territory on the south bank of the Danube. It bears every appearance of care and accuracy, and gives us the names and colours of just *thirty-eight* popu-

lations — thirty-eight populations, neither more or less — thirty-eight populations of different degrees of magnitude and importance — thirty-eight populations without counting the Russian itself — thirty-eight populations in Russia in Europe only — thirty-eight populations without the Polish.

Of these we notice only the more important, beginning with the parts above St. Petersburg, the Grand Duchy of Finland, and the so-called Baltic Provinces. These stand at the head of our article. In these it is where the chief civilisation is to be found; here, too, it is where Sweden and Germany come in contact with Russia. Here it is where we shall have an English fleet by the time these pages get read. The port of Memel, we must remember, is the last town belonging to Prussia; so that a little beyond Memel we cross the frontier and get into the Russian Governments of Lithuania and Courland, the countries of the Letts and Lithuanians, branches of the same stock, — a stock allied to that of the Russians and Poles, but not identical with it, — a stock pretty broadly contrasted with that to which the Germans belong. Now the Letts and Lithuanians are neither the oldest nor the newest occupants of their respective countries. In early times they pressed upon a population older and more aboriginal than themselves, and in later times there has been intrusion and encroachment upon them, — the intruders and encroachers on some earlier population. Such is the history for the parts before us. It is that of the State of New York in America. There were, first, the indigenous Indians of the soil; the Dutch settlers pressed upon these; the English are displacing the Dutch. The old, the new, the intermediate, — such are the populations; the old being in fragments. Such is man in his migrations all the world over.

Germans occupy the *towns*, Riga, Mittau, &c.; Letts, or Lithuanians, the *country*. They decrease in numbers as we

go eastwards, and long before we cross the frontier between Livonia and Esthonia they cease to constitute the majority; since the Esthonians belong to a different family of mankind. Yet the Germans have got as far east as Esthonia; and in the University of Dorpat (famous for its Observatory), the professors are German, the learning is German, and the language of the lectures is German. This occurs nowhere else in Muscovy. Except in Dorpat, the academical teaching is in Russian.

Except, too, through the influence of the metropolis, the Government of St. Petersburg is as little Russian as is Esthonia: so that St. Petersburg is a Russian city just as Swansea, or any other Welsh town, is English; so much and no more. When St. Petersburg was marked out for the second capital of Russia, it stood on Swedish soil. It had to be conquered from a brave and powerful enemy; and it had to be won from the water. There was a fight against man, and fight against Nature. For St. Petersburg stands on what was a swamp, and a *foreign* swamp too. It is now a great city; but the water may re-absorb it, as it has once threatened to do, and it may suffer in other ways;—but this is politics rather than ethnology.

However, the territory was originally *Swedish*, and the population was *Fin,—that is*, the Finn population of *Fin*-land reached thus far southwards, and thus far southwards it reaches now—thus far and farther. Esthonia is Fin; the Esthonians speak a dialect of the Fin; and the Gulf of Finland is well named, inasmuch as there are Finns on both sides of it. There are Esthonian Fins in Livonia,—numerous and existent at the present time. And before the Letts spread into Courland, there were Esthonian Fins there also.

And now we see the importance of this great Fin family, and we measure the space of ground it covers. Members of

it were the aborigines that have been alluded to as the earliest occupants of the districts now held by the Letts. They were the Ancient Britons (so to say) of the whole of the Baltic Provinces. And now Esthonia is their Wales, and Livonia their Cornwall.

Esthonia, then, is Fin,—Fin in the proportion of nine to one. There are some Russians of course, for the Governor is Russian, and the tax-gatherer is Russian also; and there are Germans and Swedes, Germans and Swedes not a few; also gipsies, but no Jews. These abound in Courland; but east of Courland they disappear, being forbidden. Poles, too, are scarce, and Letts are not common; so that ninety *per cent* is the proportion of Fin blood. What manner of blood is this? It is the blood of steady, sombre, sturdy-tempered men; of men whose favourite colour is black; of men who salute no strangers and scarcely salute each other; of men long conquered, and who have never tasted independence since history began, but who are, nevertheless, objects of respect to the dominant intruders who live amongst them. They are neither big nor strong, but, on the contrary, under-sized, broad-faced, and not unlike the tribes of Siberia in appearance. Destitute of commercial activity, indifferent to political ideas, ignorant of social progress, they live the life of the serf,—dull, stagnant, and unsusceptible. They cannot own land, yet they are not absolutely bound to the soil. They leave the estate of their feudal lord after half a year's notice, and after a similar warning their feudal lord can discharge them. This is their liberty,—their emancipation, such as it is. They can be reduced to pauperism, without the pauper's claim for support.

Ireland in its worst parts, and Wallachia in its best, supply the only analogies to the domestic architecture of the Esthonian serf. A wooden log-house, undivided into

compartments and unfurnished with chimneys, serves for man, woman, child, and hog. It is in this point that they contrast most unfavourably with the Letts. Yet they work steadily, though slowly; and they are honest in great matters, though pilferers in small. Lutherans in creed, they retain, next to the Laps, the most numerous remnants of their ancient paganism of any population in Europe. They *taboo* certain trees, holding it unlucky to touch a leaf, or to sit within their shadow. Their prejudices, too, are in favour of unconsecrated ground as a burial-place; a lone spot in a wood, or the solitary side of a stream, is where they best love to be laid. Thursday is their unlucky day, just as Friday is with us. Music and song please them.

So much for the Fins of the southern side of the Gulf of Finland. The Letts lie west of them—west and south, in the southern half of Livonia, and in Courland. In each of these countries they predominate, there or thereabouts in the same proportions as the Esthonians. But the Russians are numerous in Livonia, and the Jews in Courland—the Germans in both. The servitude is the same in the three provinces. The superstitions that contaminate their Lutheran creed are different in detail, but alike in amount; inasmuch as the old mythology of the Letts was different from the old mythology of the Esthonians. The physical appearance is different also, but not so different as the language, and not so different as the moral temperament. The Letts are livelier, more mobile, less sturdy. They are the population of the country; and when they take to trade and live after the fashion of the towns, they cease to be Letts and become Germans. They love music and song, and have merry feasts at harvest-home and the like. For all that they are thralls. Their feasts they call *wakes* (*vakka*), just as they do in Ireland.

In the Governments of Wilna and Grodno, the Lett

becomes a Lithuanian, just as in Livonia and Courland the Lithuanian becomes a Lett. The language is essentially the same; but a broad difference of dialect separates the two forms of speech. The Lithuanians, again, are bigger-bodied than the Letts, sturdier and slower, and are rather looked down upon. In Lithuania, too, there is far less German, and more Russian and Polish intermixture.

Intermixture between the Letts and Esthonians there is none, or next to none. Neither is there much between the Letts and Germans.

The Government of St. Petersburg has not yet been mentioned. It lies east and north of Esthonia; and the town of Narva, famous for the defeat of the Russians under Peter the Great by the Swedes under Charles XII., belongs to its frontier. Kohl, the travel-writer, who has described these parts, calls the provinces we have just dealt with the *German* Provinces of Russia, not the *Baltic* Provinces, as we do. But then Kohl is a German. In this list he places the Government of Petersburg. Surely this is somewhat violent. The most that can be said in favour of its being so is that Narva, like Revel, Riga, and Mittau, is a German town—German as opposed to the Russian of St. Petersburg, and German as opposed to the Fin population of the country. Before these are considered notice will be taken of the Duchy of Finland, with its population of Fins or Finlanders—the latter name being the better. The latter name is the better, because if you go to Norway you will find that *Fin* means something different from a native of Fin-*land.* It means a man of Fin-*mark*, which means a Norwegian Laplander. But "Laplander" is not the Norwegian name. *We* use it, so do the Swedes, so do the Russians, that or something like it. But, as aforesaid, the Norwegians do *not.* They call the Laplanders *Fins*, and the Finlanders *Quains.* So much for the name.

It has been said that when a German writes about Russia he calls Courland, Livonia, and Esthonia, the German Provinces; because, when we get amongst the towns, and use the language of the educated classes, we find it to be German. And, indeed, it was Germans who first reduced those provinces. *They* called it *converting*,—Christianising; but the war that abolished the paganism of the old Letts and Esthonians was bloody and cruel even for a war of religion (so called); bloody and cruel for a war in which the Knights of the Sword (such was their title) were the sainted actors; bloody and cruel for the dark and brutal days of the twelfth century. What began with blood ended in slavery. Such has been the fate of the German (or Baltic) Provinces—Lett and Esthonian alike. But Finland is no German province, no Baltic one, no province at all—it is the *Great* (*Grand*) *Duchy*, and its history points to another quarter. What Germany was on the south of the Baltic, Sweden was on the north. The Swedes, themselves but recent proselytes from paganism and piracy, conquered the pagan and pirate Finlanders—some of them known in history as Quains (the Norwegian name as we have already observed), some as Karelians, some as Tavastrians, the most resistent of all. For the Tavastrians lay to the south, along the northern shore of the Gulf of Finland, and, having the best climate and the best land, fought for it the most resolutely. Indeed, their civilisation was little below that of their conquerors. However, before the end of the eleventh century Finland was Swedish—Swedish in the way that Wales is English. It kept its language, and it kept its nationality. And it never changed hands till 1809 when Russia got it. This is why the Fin and Esthonian differ; why the Esthonian is, in some cases, more of a Lett than a Finlander. Their histories have been different. Yet the Finlander is but a stronger Esthonian, and *vice*

versâ. The "bull by his horn and the Fin by his word." This is the proverb that tells us what they think of themselves; and also what their neighbours think of them. You have something to lay hold of in each case. Yet the Finlander is as good in deed as in word. When the great Gustavus earned his glory by striking down the Popery of Austria and Austrian Germany, he had no better, and no better respected troops than the brave and hardy "Fin regiment." And now the little worth that belongs to the Russian navy is to be found amongst the Fins and Swedes of the coast of the Gulf of Bothnia. Except in these matters, their industry is agricultural, or, if not agricultural, applied to mining operations. They are a resolute, sturdy population; strong in their Lutheran creed, and full of self-respect; musical like the Letts and Esthonians, and thirsty (in the bad sense of the word) like the Swedes. *Vodka* is what they get drunk of, and a heady, unwholesome drink it is. The Finlanders no more constitute the whole of the family they belong to, than the Englishman constitutes the whole of the great German family. Just as there are Germans who are not Anglo-Saxons, there are Fins beyond the pale of Finland. Indeed, the stock is one of the widest in the world, and in early times has covered a larger space than at present. The Esthonians, as we have stated, are Fins. So are the Laps of Norwegian, Swedish, and Russian Lapland, though more distantly. So are the following tribes of Siberia — Siranians, Permians, Ostiaks, Woguls, Wotiaks, Tsheremis, Tshuvash, Mordvin, and, more distantly, the Samoieds. So are the Magyars of Hungary all Fin, or rather (when we speak of the family collectively) *Ugrian*. Ugrian is the generic name,—a new one, but one that is recognised by the chief authorities, and one which is convenient.

Of these more distant members of the Ugrian class, we

take no present notice. We rather take the Fins of a district which has already been mentioned, and which is important as connecting Esthonia with Finland Proper, *i.e.*, the Great Duchy of Finland. In the Government of St. Petersburg, Narva, as aforesaid, is German, and the metropolis, as is universally known, is Russian. Yet the fragments of the rural population are Fin. Why the fragments? Let us look at the streams of population. From the west came the Germans, pressing as far eastward as Narva. From the south and east came the Russians pressing as far north and west as St. Petersburg. Truly the parts before us were like the iron between the hammer and the anvil. And so the Fin population of the Government of St. Petersburg exists in fragments only. Otherwise it would have trended round the Gulf, and have conducted the Esthonians towards Finland, and the Finlanders towards Esthonia.

But it exists in fragments only. These fall into four divisions.

1. First come the *Vat*landers. This is what the Germans call them. The Russians name them *Vod*. The term by which they designate themselves is *Wattia*laisett. They are the oldest and rudest of all the Fins of the Government.

2. The *Ingrians* come next. This is what we call them, from the name *Ingaria*, or *Ingria*, the Latin form for the district of *Inger*-man-land. The Russians call them *Izhor*. As the country takes its name from them, these are the most important. They come, however, only second in point of antiquity. They call themselves *Ingri*-kot. They touch the area of the *Wattia*laisett, and extend to that of the—

3, 4. Sawakot and Auramoiset, to the north of St. Petersburg, and in the direction of Finland Proper; indeed, these Auramoiset and Sawakot are the least Esthonian and most Fin of all the non-Russian populations of St. Peters-

burg, just what we expect from that locality. The chief difference between them lies in the dress; and of their dress the women's cap is the most characteristic. It is light and neat with the Sawakot, and called *lakke;* ugly and heavy with the Auramoiset, and called *hunte.*

And now we must take leave of the Ugrians, also of the Letts, and follow the coast between Revel and Riga. Doing this we shall find that we have in front of us two larger and several smaller islands; the larger islands of Dagö and Osel, and the smaller ones of Nargö, Odinsholm, Nyckö, Worms, Moon, Mannö, Kynö, and Runö. These contain a population of Swedes, amounting (with additions from a few similar localities on the opposite coast of Esthonia) to about 6000. Of these, 600 are in the same state of serfdom as the Esthonians; whilst 300 are serfs of the crown —serfs in a somewhat improved condition. The remainder, however, proudly and truly call themselves the "free Swedish yeomen" (*fria Svenska bönder*).

Our own island of Heligoland gives us the best notion of what manner of men these free Swedes are. They are skilful fishermen, bold seal-hunters, and fearless pilots. The islands on which they live bear evidence to their speech and lineage. The names are neither Lett nor Esthonian, but Swedish; since *ö* (in Dag-*ö*) means *island,* just as *ey* does in Orkn-*ey* and Jers-*ey.* Then there are the names of sandbanks and shallows, which are Swedish also. *Gräsgrund, Sandsten,* &c.—we may almost call them English—*Grassground, Sandstone.*

It is in the two isles of Runö and Odensholm that the blood is purest. Here no lord rules, and no serf obeys. Neither is it intended that any should do so. In Runö the population in '49 amounted to 377 persons. When a Herr von Stackelberg attempted a purchase of land there, and to effect a settlement, the natives made the place too hot for

him, for they knew what would come if lords and gentlemen got footing amongst them. Esthonian labourers would be brought in to undersell them in labour, and a gradual assimilation to the Esthonian serf would be the result.

When did these settlements take place? What part of Sweden were they sent out from? No one knows. The men of Röckö and Nuckö say that they came from Dalecarlia. The other islands claim other origins. The earliest notice of any Swedes in these parts is found in one of the records of the town of Hapsal; and it is as early as A.D. 1294.

These Swedes are Christian,—Protestant,—Lutheran; their chief teachers being the parish priests, single-minded men, who rarely leave the islands to which they are attached, and whose simplicity of character serves as the groundwork for many a tale on the Continent. Indeed, the "parson at Rynö" is a bye-word for ignorance of the ways of the world. Their almanacs are *Runic*,—that is, the letters and numbers are marked on long, square staves of wood, in the old Runic alphabet, instead of the more modern characters. *Thursday* (not *Friday*) is the unlucky day, as is the case in Sweden; and this is not the only trace of the ancient deities,—*Thor* and *Freya*. Several superstitions are connected with their names. But the greater proportion is centred on the different varieties of the animal kind, the wolf and serpent being the chief. One day a man and his wife were taking their meal in the open air, when a wolf came up to them, looking so friendly and unwolfish, that they could not but give him a piece of the meat they were eating. This he snapped up so greedily, that he swallowed the knife on whose point it was given. Some years afterwards the husband was at the market in Revel, and what should he see but his knife,—the knife that had lain in, and passed through, the stomach of a wolf! He claimed, and heard the story. The *then* owner was the originally

hungry and kind-looking wolf, who had been changed from a man to beast until such time as a certain number of kind acts had been done to him in his quadruped state. One of these was the gift of the piece of meat *plus* the knife. This had promoted his return to humanity; and when he died, he left the peasant a legacy out of gratitude. Such is one of the thousand-and-one stories of *Lycanthropy* current amongst the "Swedes of the Islands." They have notions about Old Nick the same as in England. The same with Old Scratch. The Devil is called *Gaal Jaak*, or *Old Jack*, *Jack* being the abbreviation (as it ought to be with us) not of *John*, but of *Jacob*.

Of these Swedes there is a secondary colony in the Government of Cherson,— *i. e.* in the villages of Schlangendorf, Milhausendorf, Gamle Svensby (Old Swede Town), and Klosterdorf, where their habits and language definitely distinguish them from the other populations around.

With these closes the list of the populations other than Russian in the Baltic Provinces and Finland. Those of the parts about the Black Sea will form the subject of another notice. R. G. L.

CHRISTIANITY IN ROMAN BRITAIN.

THERE is a monkish tradition that Joseph of Arimathea first brought the Gospel to our island, and the shire of Somerset would, in that case, be the cradle of British Christianity. On a hill called "Wearyall," near the old town of Glastonbury, it was long the popular belief that the missionary and his brother pilgrims sate down to rest, and Joseph struck his staff into the turf beside him. In resuming his journey, he forgot this travelling companion, which he had brought all the way from his estate in Palestine, and it remained rooted in the hill, and soon blossomed into a hawthorn-tree. A great church and a convent were afterwards erected near the spot, and the Glastonbury Thorn grew famous. Many miracles were ascribed to it; and among other wonders it was said that it always blossomed on Christmas-day. It is very possible that it may have frequently come into flower at that season, if the weather were mild; especially if, as is not unlikely, the monks had brought it from a Southern clime. The last remains of the Glastonbury Thorn were cut down by Cromwell's soldiers in 1649; but so strong was the local faith in its oracle, that when the calendar was reformed last century, in the absence of the original the people consulted its descendant, and as it gave no sign on the 25th of December, but "blowed as usual" on the 5th of January, no doubt was left on their minds that the new style was a heterodox innovation. That style was first introduced by Pope Gregory; but it is rejected by the Greek Church, which continues as steadfast to the old reckoning as that sturdy Orientalist, the walking-stick of St. Joseph.

It would be interesting could we ascertain who was the first disciple of the Saviour in the land of Jeremy Taylor and Milton and Whitfield; and it would supply a great gap in the Christian story could we tell who lit the lamp which was destined to light up kindred fires in America and Australia, in Polynesia, in Hindostan, in China. But the British Church is unfortunate in its early annalists. Not only did they write long after the first events, but legends, like the above, are a poor substitute for history. Most of these chroniclers were monks; and, with little knowledge of New Testament Christianity, they had more pleasure in recounting prodigies than in recording the beneficent deeds of genuine piety. To their omnivorous credulity the greatest portent was welcome, provided it enhanced the value of relics and holy water; and if they had any preference, it was for fables seasoned with a strong spice of absurdity. Doubtless there is in some of their wildest recitals a basis of fact; but, like a fly drowned in a mineral solution, or a mouse encrusted with tufa, it has become so altered and so enormously magnified, that its original size and shape can seldom be enucleated from the thick coatings which successive romancers have given it.

From the Latin Father Tertullian we know that there were Christians in these islands as early as A.D. 208; and if we may accept, in its strictest sense, his somewhat rhetorical language, they were to be found even in regions which the Roman arms had not penetrated. And it is possible that in these ends of the earth the Gospel, once introduced, may have travelled fast and far. The province was one of the remotest from Rome, and, therefore, one of the last which persecuting edicts were likely to reach. Besides, the extermination of the Druids, leaving the country in some respects a religious fallow, gave peculiar facilities for planting a new faith. Doubtless the Teutonic and Thracian

legions, by whom a large portion of the country was colonised, as well as the Roman conquerors themselves, brought their own idols with them; but amongst these legions there could scarcely fail to be some Christians. On the other hand, the aboriginal Britons were likely to have as little prejudice against the system of these gentle missionaries as against the images of their stern and ungainly masters. And although the fact, that amongst hundreds of idols and altars which still survive from the Roman epoch in Britain no trace of Christianity can be found—although this fact has been urged as a strong presumption against any early spread of the Gospel in our island,* it must be remembered that to early Christianity idols and altars were unknown. In Rome itself, were it not for the graves in the Catacombs, there would be no monumental trace of Christianity from the days of Nero to Constantine; and yet we know how powerful was the Christianity of the capital during all that interval. The truth is, that the most simple and spiritual period of a church's history is likely to be least commemorated in works of art; and it is not a church subsisting by sufferance which is apt to rear public monuments, or make a parade of its presence.

It was not till the reign of Dioclesian, and about the year 304, that the storm of persecution burst on this island. The first victim was a Briton by birth, though a Roman citizen. At the time when the imperial edict reached this province Albanus was still a heathen; but, from feelings of humanity, he had given an asylum in his house to a minister of the proscribed religion. The constant prayers and the holy demeanour of his inmate so impressed his mind, that he sought instruction, and soon became a convert. Nor was it many days till soldiers came in search of the fugitive. As soon as he saw them approaching the house, in order to

* Wright's "Celt, Roman, and Saxon," p. 298.

save his guest and teacher, Albanus went out to meet them in the long robe of a Christian priest, and was at once hurried off to the magistrate. Conducting him to the altar, the judge offered the usual test, and commanded him to sacrifice to the idol. But Albanus answered, "These are the sacrifices of devils, and cannot avail the worshipper. On the contrary, whosoever shall offer sacrifice to these idols shall receive the pains of hell for his reward." On this he was scourged, and ordered off to instant execution; but so struck with the martyr's constancy was the soldier appointed to slay him, that he refused to perform his office, and they were both beheaded together. This happened near the Roman city Verulamium, twenty miles north of London; and on the hill consecrated by the blood of these protomartyrs, afterwards arose one of the stateliest abbeys in all the land. Thirteen centuries later, in the adjoining Church of St. Nicholas, were deposited the remains of Francis Bacon, Baron Verulam and Viscount St. Alban's; and there are few pilgrimages which will better repay the Christian scholar than a visit to the spot which received the dust of the first British confessor of the Christian faith, as well as of the great Christian founder of the modern philosophy.

The storm was changed into a calm. In 306, Constantine was proclaimed "Augustus" by the army at York, a circumstance which, followed by a series of remarkable successes, soon changed the aspect of affairs, and ended in the establishment of Christianity as the religion of the Roman World; and thus we may, in some sense, claim for our country the distinction of having elevated to the throne of the Cæsars the first Christian Emperor.

The first public transaction in which British clergymen appear to have taken part was the Synod at Arles, in Gaul, A.D. 314. Its decrees were subscribed by three bishops, a

presbyter, and a deacon from Britain—a circumstance sufficient to show that at this early date the Church of Albion had become considerably organised and important.

And yet in the records of the Romano-British Church there are no names of out-standing eminence. It made no contribution to theological literature, and it may be feared that the religion of the people would be little more than nominal, if, as Gildas alleges, the zeal of the clergy was chiefly expended in paltry disputes and personal altercations. But if Britain yielded no great doctor or father, it produced a formidable innovator on the established faith. This was PELAGIUS. He was a clever and well-informed man, of unquestioned piety and most exemplary character, of correct morals rather than profound emotions, and encumbered with none of those mental attributes which do not serve practical, every-day purposes. A stranger to the spiritual agonies of his great contemporary Augustin, he was at the same time too honest to sympathise with the sanctimonious aspirations of brother monks, who, in their flight towards an ideal perfection, had risen far above the sphere of the Ten Commandments; and he was even so irreverent as to fancy that the Church of the Fourth Century might revive with advantage some of the old-fashioned pagan virtues. And had his generous appreciation of the noble traits in heathen heroism, and his impatience of cant and hypocrisy, been united to a faith intensely evangelical, he might have helped to arrest the corruptions already so quickly advancing. But, unfortunately, instead of seeking to achieve a reformation of conduct through a revival of life, Pelagius sought to improve the fruit without changing the tree. It was his doctrine, that every man may be as holy as he pleases; that sin is not owing to any evil tendency now inherent in mankind, but the result of bad example; that each of Adam's children starts on existence as innocent as Adam himself; and that,

in the unaided use of the powers which God has given him, he may rise to any height of moral excellence. Thus denying the fact of original sin, and the correlative fact of the creature's entire dependence on the grace of God, he left little place for the Christian atonement. And although he did not in words reject the Saviour's sacrifice, it was evident that he valued the incarnation chiefly on account of the strengthening element which it imported into human nature, and the splendid example which it enabled the Saviour to exhibit. To say nothing of this system's contrariety to Scripture, its obvious tendency was to lower the entire tone of Christian devotion. It made sin no longer exceeding sinful, and it rendered quite unnecessary that spiritual renovation on which the sacred writings so largely insist; and by flattering the pride of the natural man, it drew around it dapper sciolists who ignored the sublimest truths of Revelation, and flippant talkers who scoffed at the penitential acknowledgments of David and Paul. And although, with Augustin himself, we may concede the good intentions and godly sincerity of Pelagius, we can regret none the less that he should have sought by one-sided doctrine to remedy a defective morality, and by exaggerating a half-truth into a grievous practical error, that he should have missed the opportunity of reviving religion by an exhibition, even-handed and earnest, of the entire counsel of God.

Although it was not in his native land that Pelagius elaborated his system, Britain was one of the countries where it found most acceptance. Nominally orthodox themselves, the clergy were alarmed at the defection of their flocks, and, unable to cope with Agricola and other popular preachers of the new doctrine, they sent across the Channel for assistance. Their Gallic neighbours deputed Germanus of Auxerre and Lupus of Troyes, who came to Britain about A.D. 429. The Pelagians challenged the strangers to

a public discussion; and a conference was held at Verulam, to which an immense concourse of spectators resorted, and in which the victory was so entirely with the foreign bishops, that from that period onward, Bede says, the Pelagian tenets were rooted out from the minds of all men.

St. Germanus, if we may believe the monkish traditions, crowned his theological triumph by a series of brilliant miracles. At the close of the discussion an officer and his wife came up, and begged his prayers for their daughter, a little girl ten years of age and totally blind. Germanus referred them to his opponents, who, however, confessed they could do nothing. On this Germanus offered a short prayer, and taking from his bosom a casket of relics, he touched the child's eyes, and she was instantly restored. At the same time the Britons were engaged in war with their Pictish neighbours, reinforced by Saxon auxiliaries. Germanus, who had been a soldier in his youth, felt such a revival of his former chivalry, that he joined the camp of the Britons, and gave himself to the two-fold task of inspiriting them against their pagan adversaries, and baptising those of their own ranks who had not yet received the Christian symbol. At last tidings came that the heathen host was in motion, and Germanus with his army went forth to meet them. The Britons awaited the attack in a defile near Mold, in Flintshire; and as soon as their enemies were near enough, the soldier-bishop gave the word, "Alleluia!" and "Alleluia!" re-echoing among the rocks from many thousand voices, the Picts were so startled that they scampered off in a panic, and left their assailants a field of spoil and a bloodless victory. Having thus delivered the Britons from the sword and from heresy, Germanus went back to Auxerre, carrying with him as his reward a few particles of earth bedewed with the blood of St. Alban.

THE STORY OF A HYMN.

In passing leisurely up some valley, we alight, perhaps, on a huge boulder, whose size and figure attract us strangely, compelling us to linger and examine. It is rugged and seamed, yet not the less interesting on that account. It stands before us "moss'd with age,"—time-worn and weather-wasted,—nestling in its own *débris*,—just the very rock on which one loves to sit and muse. It contains no record of its parentage, no date of its emigration, and no record of the scenes it has witnessed, or of the storms that have beaten on its massive front. Whence has it come, and how has it found its way to this solitude? Did it descend from yon neighbouring crags? or, clasped in ice, has it travelled many a mile, floating over ridges and across plains, till it has settled down in this strange land? We feel such an interest in the old rock, that we cannot help putting such questions,—very impatient for, though hardly counting upon, an answer.

It is with some such feelings that we turn over, and over again, this old Scottish "Broadside" that lies upon our table. About one foot in length by eight inches in breadth, in small type, without "leads," in three columns; it contains a hymn of sixty stanzas, common measure, like many of the old ballads, and like most of the Scottish Psalms. Its title is given in large letters,—THE NEW JERUSALEM; and its third column closes with *Finis*, in due form. It is without date; but one might guess it to be about 160 years old. It is embrowned with age as well as soiled with use; and its ragged edges intimate the freedom as well as the frequency with which it has been "thumbed" by more than one genera-

tion. The "hard hand" of the Northern peasant has been upon it, when, perhaps, going a-field at early dawn, or at even teaching it to his children round the hearth, as that which their fathers sang in the city prison, or at Cameron's grave, or on "Peden's Knowe," or on Eckford Moss, or on the Moors of Fenwick, or amid the "Hopes" and "Cleuchs" of Meggat-dale.

This ballad-hymn begins with words which have gone over the breadth and length of the land, till every cottage-roof has echoed them:—

"O mother dear Jerusalem,
When shall I come to thee?
When shall my sorrows have an end,
Thy joys when shall I see?

O happy harbour of God's saints,
O sweet and pleasant soil;
In thee no sorrow may be found,
No grief, no care, no toil!"

Whence has this noble plaint come from? What is its pedigree? What story has it to tell? Like the boulder we spoke of, it has for generations been imbedded in Scottish soil. But has it always been there? No; not always. We can trace it backwards to England. From England we can trace it backward to a more Southern region. It has traversed seas; it has crossed mountains; it has drifted over plains to the spot where we find it.

Wodrow, in his Life of David Dickson, minister of Irvine, in the middle of the seventeenth century, ascribes the hymn to that man of God, who, in his hours of leisure, used to solace himself with song. Here, however, he is incorrect. That Dickson revised it and sent it out in the shape in which we find it in the "Broadsides," is, we think, certain. He was evidently the editor of the Scottish versions of it; and to him Scotland owes much for putting into

the lips of her sons, for generations, a song so sweet and holy,—a song which threw a fragrance over her hills, which, even to this day, is not only remembered, but *felt*.

But the hymn is not Dickson's; nor is it of Scottish origin. We can trace it out of Scotland, and show that it existed in England nearly half a century before the Minister of Irvine gave it to Scotland.

Much about the same time that it became known in the North, it seems to have been going abroad through the South, though in a briefer form. In the year 1693, the Rev. W. Burkitt, the well-known expositor, published a small thin volume of prayers and hymns. Among the latter we find the hymn; reduced, however, to eight stanzas, and very much the same as Mr. Montgomery gives in his "Christian Psalmist," or Dr. Williams in his "Collection."

In 1692, John Hall published a small volume, entitled "Jacob's Ladder," in which the hymn is given at considerable length. Its heading is "The Soul's breathing after her Heavenly Country," and consists of twenty stanzas. This edition resembles, in several respects, that of Dickson. It begins,—

"Jerusalem, my happy home,
O that I were in thee!
O that my woes were at an end,
Thy joys that I might see!"

During the earlier part of the seventeenth century (between 1610 and 1660), we find no traces of the hymn. William Drummond of Hawthornden (and others also) have given us translations of the Latin mediæval hymn, "Urbs Jerusalem beata;"* but it is quite distinct in sentiment,

* Drummond translated also the "Dies iræ." It would be curious to gather together the various translations of that old hymn. They are far more numerous than is generally supposed. I may add, that Drummond translated a considerable number of the old Latin hymns.

tone, language, from the other class of hymns, whose history we are tracing out. The keynote is altogether different. In these Latin hymns the tone is quite jubilant,—full of exultation, because of something already come, or just on its way. In the others the prevailing sentiment is plaintive, longing for something which still seems afar off.

It is not till we come to the beginning of the seventeenth century that we get trace of our hymn again. In the year 1601 was published a small quarto of forty-five pages, entitled "The Song of Mary the Mother of Christ."* It contains two poems on the "Heavenly Jerusalem," the one consisting of fifty-two four-line stanzas, the other of nineteen four-line stanzas. The latter we strongly suspect to be the very hymn in question. We have not been able to cast eyes on the volume in spite of every effort. It is not in the British Museum, nor in the Bodleian. The longer hymn in it is remarkably like the one we are in quest of, and must have been quarried from the same deposit, or composed by the same hand. Most of it is given at length in the Parker Society Collection of Poetry, vol. ii., p. 427.† It thus begins:—

"My thirsty soule desires her drought,
At heavenly fountaines to refresh;
My prysoned minde would fayne be out
Of chaynes and fetters of the flesh.

She looketh up unto the state
From whence she downe by sin did slide;
She mournes the more the good she lost;
For present ill she doth abide.

* See Brydges' "Censura Literaria," vol. ii.

† The reader will find it in full in "The New Jerusalem, a Hymn of the Olden Time," published by Johnstone and Hunter, Edinburgh.

She longs from rough and dangerous seas,
To harbour in the haven of blisse;
Where safely anchor at her ease,
And store of sweet contentment is.

From banishment she more and more
Desires to see her country deare;
She sits and sends her sighes before,
Her joys and treasures all be there."

To any one who will read the hymn from beginning to end, the similarity will be quite apparent, and the common fountain-head will seem equally certain. This, however, will be made more manifest as we proceed.

About three or four years ago our attention was called to a manuscript in the British Museum, said to contain the hymn in question, and, moreover, affirmed to establish a Popish origin for it. The manuscript is numbered 15,225, and is lettered on the back "Queen Elizabeth," though internal evidence shows it to belong to James.*

That manuscript seems to be the scrap-book of some Popish gentleman about 1617 or 1618, and is of a miscellaneous nature, containing several old and well-known pieces, printed in the "Paradise of daintie Devises," many years before. It contains, at full length, the hymn printed in part by the Parker Society, with this commencing stanza:

"Hierusalem! thy joyes divine,
Noe joyes may be compared to them;
Noe people blessed soe as thine;
Noe cittie like Hierusalem."

* We counted some five or six allusions to James as then reigning, besides references to events in his reign, such as the execution of John Thulis in 1616. This is evidently the Thulis whose name occurs in Calderwood, along with one F. Barth-*Pere*. We mention this last name because of its curious coincidence with the initials in the manuscript hymn, and because it shows that the P. in the manuscript stands for *Pere*. (Calderwood's Hist. vol. v. p. 194.)

Its title is "A Prisoner's Songe," after which, by way of motto, and separate from the rest of the hymn, comes the verse already quoted, "My thirstie soule," &c.

Along with this there is another hymn quite in the same tone, and containing many like expressions and figures. It has no title, but runs thus,—

"Amounte, my soule, from earth a while,
Soar up with wings of love,
To see where saints and angels dwell
With God in bliss above.
* * * *
Hierusalem the place is calld,
Most sumptuous to behold,
The place with pretious stones is walld,
And streetes are paved with gold.

The gates with pretious pearles are framed,
There rubies do abound;
The pretious pearles that can be named,
Are there in plenty found.

Amidst the streetes the well of life,
With golden streames doth flowe;
Upon whose banks the tree of life
In statelie sort doth growe."

Thus the hymn runs on for fifty-four stanzas, all of them, or almost all of them, quite parallel with the other hymn we have described. It contains one or two fierce lines against "rude and railing heretikes," as well as against "persecuting potentates;" and it is evidently the composition of some of those Romanists who, during the reigns both of Elizabeth and James, were imprisoned for their Jesuitical intrigues.

But in this manuscript there is a third hymn which has only this heading, "A Song by F. B. P. to the tune of Diana." It is evidently the original of our hymn, being in most respects quite identical. We only give a verse:—

" Hierusalem, my happy home!
When shall I come to thee?
When shall my sorrows have an end,
Thy joys when shall I see?"

It then goes on precisely like Dickson's, in most places word for word, so far as it goes. It contains, however, only twenty-six stanzas.

It is strange to find three such hymns in one manuscript volume, and all of them anonymous. The first is sometimes ascribed to Breton; but this is doubtful. The style is more like that of Southwell;* but he was executed in 1595, and the volume in which it was printed was not published till 1601. It is evident, however, that they must have been, at least to a certain extent, the work of Romanists, to what extent will immediately appear.

In going over these various pieces, one begins to draw the conclusion that they must have had a common origin. That they all sprang out of the last two chapters of the Apocalypse is obvious enough; but this is not all. There is clearly some one piece or poem on which they are modelled; which poem, though itself founded on the Apocalypse, had drawn together kindred passages, and embodied peculiar expressions and figures, which are preserved in all the different hymns.

We have already remarked that we do not consider them as having any real affinity with the hymns in the Breviary which refer to Jerusalem. But there is a hymn of Hildebert, in the beginning of the twelfth century, which comes much nearer to them,—

" Me receptet Syon illa,
Syon, David urbs tranquilla," &c.

Just about the same time there is the hymn of Bernard

* See Southwell's "Epistle of Comfort to the Priests," &c., where there is a passage in prose descriptive of the New Jerusalem.

of Clugny, "Laus patriæ cælestis," in which there is considerable resemblance to our hymn. Then, farther back, there is the hymn of Damiani, which is generally ascribed to Augustine, and is often printed among his "Meditations." This is, perhaps, the likest of all the Latin pieces to our hymn. Were it not for overstretching our limits we should gladly cite a few lines; but we must refer our readers to the original itself.*

Strange to say, however, these Latin hymns resemble the English ones in this, that they give rise to the suspicion of a common fount. There are expressions and figures common to all of them; and they are on the same chord. We have been at some pains to trace out these expressions, and we have discovered most of them in Augustine, scattered throughout his works. Some, for instance, of Hildebert's lines are word for word from Augustine ("De spiritu et anima"). This raises the question,—Is not Augustine the real fountain-head of all the hymns Latin and English? Such we have no doubt is the case; and if the reader has a copy of his "Meditations" at hand, and will turn to chapter xxv., he will find the whole of David Dickson's hymn and the greater part of all the rest. He will find the same allusions, the same figures, the same passages of Scriptures,—he will find all but the Popish references to the Virgin and the saints, &c., which were thrust upon the original by the versifier or versifiers in England in the end of the sixteenth century. Thus the original of the hymn has nothing in it of Popery or superstition; and it is very evident that while David Dickson had before him the English version or versions formerly referred to, he had specially Augustine's chapter in his eye; for while he has more than doubled the

* See Königsfeld's "Lateinische Hymnen," p. 22, and Daniel, "Thesaurus," vol. i., p. 116. All these Latin hymns are collected in the volume referred to before "The New Jerusalem."

length of the English hymn, he has taken all his additions from Augustine, making his version a more exact translation of that father than any of the preceding hymns had been.

Here, then, we bring our researches to a close. We wish that space had allowed us to be somewhat minuter in details and more abundant in extracts. But we have sketched the story of the old hymn, and our readers can go into details for themselves. We found the rugged old boulder upon the "sandy hillocks of Irvine;" and we have traced its journeyings backward for no inconsiderable way. We have traced it from Scotland to England; from England to France, crossing hill and dale. From France we have traced it to the shores of Africa, floated over the Mediterranean in the folios of a Latin father, having taken just about a thousand years in the passage between Hippo and Irvine. A long period, we may think, yet not by any means injurious either to the fragrance or the vigour of the hymn; nay, rather, by such a venerable age imparting a mellow tenderness and solemnity which a less antiquity would have failed to give.

It is soothing to the soul to stroll along the Ayrshire strand, with the rustling "bent" or the grey sand underfoot,—the broad ocean in front,—Arran rising in abrupt majesty from its bosom,—the sun sinking down behind its island-hills, and sending out a burst of radiance, as if it would splinter the obstructing peaks of Goatfell; it is soothing at such an hour and in such a scene to sing to the ocean-solitude words which two hundred years ago had been sung to the same ocean,—

> "Jerusalem, Jerusalem,
> Would God I were in thee,
> O that my sorrows had an end,
> Thy joys that I might see!"

and while singing, to hear the sound of a more distant and venerable voice from the shores of the Mediterranean,

uttering the same words, and breathing out the same melody, "O Jerusalem, my mother, holy city of God, dearest spouse of Christ; thee my heart loves; for thy beauty my soul longs with excessive desire. How fair, how glorious, how noble, art thou. Altogether beautiful; there is no spot in thee! . . . Happy should my soul for ever be, if I might be thought worthy to behold thy glory, thy blessedness, thy comeliness, thy gates, and walls and streets, thy many mansions, thy thrice-noble citizens, and thy mighty King in his beauty. For thy walls are of precious stones, thy gates of the most excellent pearls, thy streets of purest gold, in which a joyful Allelujah, without ceasing, is sung. Thy many mansions are founded upon square stones, built up with sapphires, covered in with golden tiles; into which no one enters save the clean; no defilement dwells in thee. . . . There charity reigns full and perfect, because God is there all in all. Him without end they see; and in always seeing Him they beam with His love. They love and praise; they praise and love. Their whole employment is the praise of God, without end, without flagging, without toil. Happy were I; yes, truly and eternally happy, if, after this frail body is dissolved, I might be deemed worthy to hear those songs of heavenly melody which are sung to the praise of the eternal King, by these citizens of the upper country and the bands of blessed souls. Fortunate were I, and too blessed, if I were deemed worthy to sing those songs, and to stand in the presence of my King, my God, my Captain, and to behold Him in His glory, as He has condescended to promise, saying, 'Father, I will that they whom thou hast given me be with me where I am,' &c.; and again, 'If any man serve me, let him follow me,' &c.; and again, 'He who loves me shall be loved of my Father, and I will love him and will manifest myself to him.'" H. B.

LIFE, IN ITS LOWER FORMS.

No. II. (*continued.*)

PORIFERA. *Sponges.*

THOUGH the horny or keratose sponges are distinguished from those which have calcareous or silicious spicula in them, this distinction must not be understood to imply that the former are totally destitute of these bodies, but only that they possess them in an excessively minute proportion. Mr. Bowerbank, in his elaborate and valuable investigations "On the Keratose Sponges of Commerce," has found spicula of very minute dimensions imbedded in the substance of the horny fibres of various species.* Still the immense preponderance of the corneous structure fully warrants their isolation as a natural group.

The horny fibres, as we have already said, form an irregularly netted mass, uniting to and separating from each other at various angles and distances without the least order. They are not tubular, as has been supposed, but solid, and of unequal thickness in different parts. Sometimes they are rigid and coarse, as we have seen in a large tubular sponge on the shores of Jamaica, emulating almost the entangled twigs of a thorny bush in their inelastic stiffness. But more commonly the slenderness and arrangement of the fibres impart to the sponge that elasticity which is one of its most valuable qualities.

In order to apprehend truly the character of any sponge, it should be examined alive if possible; but if this be impracticable, at least specimens should be selected which have been dried as they came from the sea, without having

* Trans. Micr. Soc. i., p. 32.

been subjected to any processes of washing, pressing, or cleansing. In specimens of Turkey sponge in this condition, Mr. Bowerbank finds the horny fibres surrounded by a beautiful tissue of branching vessels in great abundance, inclosed in an external membrane or sheath. This tissue Mr. Busk has succeeded in injecting with coloured fluid.

The fibres are also covered with a web of darker colour than their substance, composed of minute granules, which are conjectured to be incipient gemmules; for nucleated gemmules were found on the fibres of other specimens, in which the granulose texture was wanting. The maceration in fresh water, however, and the immersions in diluted acid to which the commercial sponges are subjected, remove the whole of the gelatinous flesh, and render this structure inapparent in specimens sold in the shops.

In commerce two kinds of sponge are known, the Turkey and the West Indian. But of the former Mr. Bowerbank makes two species, undistinguishable indeed by any marks that the naked eye can appreciate, but recognised in an instant on microscopical examination by the presence or absence of the investing vascular tissue above mentioned. Both of these species grow abundantly in the eastern parts of the Mediterranean, especially around the numberless islets of the Grecian Archipelago. Smyrna is the great market for the sponge trade, and the exportation of this article forms no inconsiderable source of its prosperity.

Great Britain imports annually about 60,000 lbs. of sponge, paying duty of 6*d.* per lb., with five per cent addition. The greater portion comes from the Levant, but Barbadoes and the Bahamas supply a coarser sort, chiefly used for washing carriages. Its pores are large, and it has projecting lobes; the fibres possess little cohesion, and hence it is commonly called "rotten."

The Grecian sponges grow in moderately deep water,

usually assuming a more or less manifest cup-form. Those which reside in the deeper recesses of the sea are said to be of larger dimensions, as well as of finer texture, than such as are more exposed to the action of the waves. Aristotle, who enjoyed peculiar facilities for the study of these organisms, and who has speculated on their nature, says that in a living state they are *black*, except as covered with the light earthy sediment of the sea;—a circumstance which, but for his high authority, we might have doubted.

In many of the Greek islands the diving for sponge forms a considerable part of the occupation of the inhabitants, as it has done from the most remote antiquity. Hasselquist says:—"Himia is a little, and almost unknown island, directly opposite Rhodes. It is worth notice, on account of the singular method the Greeks, inhabitants of the island, have to get their living. In the bottom of the sea the common sponge is found in abundance, and more than in any other place in the Mediterranean. The inhabitants make it a trade to fish up this sponge, by which they get a living far from contemptible, as their goods are always wanted by the Turks, who use an incredible number of sponges at their bathings and washings. A girl in this island is not permitted by her relations to marry before she has brought up a certain quantity of sponges, and before she can give a proof of her agility by taking them from a certain depth."* In other islands the same custom prevails, but with reversed application, as in Nicarus, where the father of a marriageable daughter bestows her on the best diver among her suitors,—"He that can stay longest in the water, and gather the most sponges, marries the maid."†

In fact, the employment seems to be common to both sexes and all ages. Savary, describing a little insular de-

* Voyages in the Levant, 1766, 175.

† Pomet's "Hist. of Drugs," v. 102.

pendence of Rhodes named Syme, observes as follows:—"The sponges which grow around this isle are the only resource of the inhabitants. Men, women, and children, all learn to dive. All must seek beneath the waters the only patrimony which Nature has left them. The men excel all in this dangerous art. They precipitate themselves into the sea, and descend to an enormous depth. Often they do violence to themselves in retaining their breath too long, and on emerging vomit a mouthful of blood. At other times they run the risk of being devoured by sea-monsters, against which the knife which they carry is but a poor defence. They distinguish with clearness distant objects through the crystal element, and as soon as they perceive voracious fishes, they shake rapidly the foot of the rope, and in an instant are drawn up to their boat. I learned these particulars from a diver of the country, who complained sadly of his hard lot and of his small profits."*

The uses of sponge have been appreciated from very ancient times. We learn from Aristotle that it was used to line the brazen armour which his countrymen wore in battle. "The kind called Achilleum, fine in texture, and very thick and strong, they put under helmets and greaves, viz., between the armour and the skin, whereby blows are rendered less stunning." The same kind was employed, as with us, for cleansing purposes. Thus Homer says:—

"Then with a sponge he drest
His face all over, necke and hands, and all his hairie breast."†

And in the Odyssey, the seats and tables after the slaughter of the suitors are cleansed by "well-soaked sponges."‡ Martial also informs us§ that the tables after meals were carefully scoured with wet sponges; for the Greeks and Romans knew not the comfort of table-cloths, which the

* Lettres sur la Grèce, 96.
† Iliad, lib. xviii.
‡ Odyssey, lib. xxii.
§ Apophor. n. cxliv.

Nineveh marbles show to have been familiar to the Asiatics. Another use was that of conveying liquids to the mouths of persons incapable, from exhaustion or other causes, of drinking; and the Christian remembers with interest that the last office rendered to the Lord Jesus in his humiliation, was the moistening of his lips by means of a sponge.*

Pliny alludes to the sponge as one of the articles used by painters of his day: it has been conjectured from this that water-colours were employed in ancient art, and the sponge probably performed a similar office to that which it holds in the hands of a modern artist, washing out lights, &c.

In modern surgery, the use of the sponge is great. The flowing blood in operations is absorbed by it; acrid discharges from wounds and ulcers are thus imbibed; and dangerous hæmorrhages are checked and sometimes arrested by its application. The sponge-tent, formerly much used for dilating sinuses and small openings, was made by dipping the sponge into melted wax, and then compressing it, until it became cool, between iron plates.†

The quality of *bibacity* in which the value of sponge chiefly consists, is owing to the multitude of minute channels with which its whole substance is perforated, and is dependent on the law of capillary attraction. By this law fluids ascend, in tubes of small diameter, to a height which increases in proportion to their tenuity, as any one may observe who will plunge the end of a fine glass tube into water. It is not requisite that the tubular form should be perfect or uninterrupted; the interspace between two closely approximated fibres will serve as a capillary tube, and thus the sponge-fibres present a series of canals through which any fluid, with which a portion of the surface is in contact, will continue to flow until the whole are filled.

A very different process is this spontaneous imbibition of

* Matt. xxvii. 48. † Pereira, "Mat. Med." §1814.

water by capillary attraction from that already described, by which a constant stream enters at the pores, and passes out at the *oscula*. The one is a mechanical, the other a vital operation. The latter is performed only during life and health, and contributes to the nourishment of the animal; the former goes on after death, and is of no benefit to the sponge, though very useful to its possessor. The one may be compared to that indiscriminate devouring of books, which we sometimes see in great readers, a voracity insatiable indeed, but which leaves the mind as empty as it was before; the other to that guarded selective reading which ever watches to extract mental food, separating and rejecting by a secret, but potent alchemy, the useless and the bad. Or we may compare the one to a soul dead in trespasses and sins, incapable (because destitute of spiritual perceptions) of distinguishing truth from error, and therefore carried about by every wind of doctrine of those who lie in wait to deceive, the tool of Satan and his agents, whose purposes they are unconsciously serving. The other may be likened to a living soul, who brings everything to the touchstone of the Word, proving all things, and holding fast only that which is good, by which he is nourished and edified, his spiritual life is developed, and he grows in knowledge, in service, and in grace.

Perhaps we may carry this parallel further. The eclectic process in the sponges is not so simple a thing as might be supposed. From the common water, which bathes all alike, various and dissimilar substances are separated, selected, and appropriated by different species. "For example, it is very common to find growing on the same rock, or seaweed, a silicious, a calcareous, and a horny sponge; they have all the same exposure, and are all recipients of the same nutriment, yet does each act upon this differently. One extracts from the fluid *silica*, which it causes to assume a solid

crystalline form; another selects in the same manner the *calcareous* particles, which, obedient to the laws of life, assume figures novel to them in their mineral state; and again, another rejects both the lime and the flint as injurious to its constitution." *

So, when the minister of the Word, "a Scribe instructed unto the kingdom of heaven, bringeth forth out of his treasury things new and old," souls of varying powers, circumstances, and necessities, receive the same truths; and the Spirit of life in their heart, ministering to every one severally as He will, admonishes one, stimulates another, guides a third, comforts a fourth; and thus the Word is found "profitable for doctrine, for reproof, for correction, and for instruction in righteousness."

The manner in which the sponges increase their race is highly curious, and affords a beautiful example of the care which the All-wise God has exercised over His lowest creatures. According to Professor Grant,† there are found at certain seasons of the year, within the channels of a living sponge, innumerable yellow granules, imbedded in the gelatinous flesh. These gradually increase in size, and project more and more into the channels, until, at length, one by one becomes freed, and is immediately hurled along to the nearest outlet by the constant ex-current. On examination, it is now seen to be a little oval gemmule, which one might call an egg, but that it possesses the faculty of spontaneous motion. The larger extremity is covered with excessively minute cilia, by the waving motion of which, as by innumerable oars, it is rowed along through the water, exactly like one of those Infusoria which we described in a former paper, and for which it might readily be mistaken. It does not, therefore, fall to the bottom of the sea as soon as the

* Johnston: "Brit. Sponges," 16.

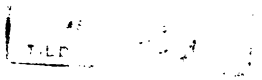
† Edin. Phil. Journal, xiii.

ejective impulse of the parental current is exhausted, but continues to shoot along, until, exerting apparently a power of choice, it meets with a suitable locality for its settlement. Here it lodges, spreads out an adhesive film of gelatinous matter, absorbs its now useless cilia, becomes stationary, grows by increase of its circumference, and soon developes all the structure, and exercises the functions, that characterised its parent.

"It is curious," observes Professor Jones, "to observe the remarkable exception which sponges exhibit to the usual phenomena witnessed in the reproduction of animals, the object of which is evident, as the result is admirable. The parent sponge, deprived of all power of movement, would obviously be incapable of dispersing to a distance the numerous progeny which it furnishes. They must inevitably have accumulated in the immediate vicinity of their place of birth, without the possibility of their distribution to other localities. The seeds of vegetables, sometimes winged and plumed for the purpose, are blown about by the winds, or transported by various agencies to distant places; but in the present instance, the still waters in which sponges grow would not have served to transport their progeny elsewhere; and germs, so soft and delicate, could hardly be removed by other creatures. Instead, therefore, of being helpless at their birth, the young sponges can, by means of their cilia, row themselves about at pleasure, and enjoy for a period powers of locomotion denied to their adult state."*

P. H. G.

* Outline of Anim. King. 17.



The Great Ant-Eater. (Myrmecophaga jubata.)

THE GREAT ANT-EATER.

(*Myrmecophaga jubata*, L.*)

A FEW months ago a handbill was distributed in the neighbourhood of Seven Dials, inviting the public to visit a "wonderful animal fed with ants, and possessing strength to kill the lion, tiger, or any other animal, under its claws." We entered the miserable apartment where it was exhibited, and any spectator must at once have been struck with the creature's want of resemblance to any other he had ever seen. Its head so small, so long and slender; the straight, wiry, dry hair, with which it was covered, and its singularly large and bushy tail, first attracted notice. A second glance showed its enormously thick fore-legs, and the claws of its feet turned in, so that it walked on the sides of its soles. Oken and St.-Hilaire would have said it was "all extremity." A cup, with the contents of one or two eggs, was brought, and it sucked them with great avidity, every now and then darting from its small mouth a very long tongue, which looked like a great, black worm, whisking about in the custard. One of its showmen told us that it had attacked the woman of the house the preceding day, and had scratched her arm. Whether this was true or grossly exaggerated, we know not; but if so, we suspect that the woman herself must have been in fault, and not the inoffensive stranger.

On the payment of a handsome consideration to her owners, the poor captive was transferred from her unwholesome lodging in St. Giles's to the Gardens of the Zoological Society in the Regent's Park. And within the last few weeks her solitude has been cheered by the arrival of

* From μυρμηξ, ant; φαγω, I eat; *jubata*, maned.

a companion from her native forests. The new-comer is in beautiful condition, though not nearly so large. He has a head decidedly shorter and stronger, and is probably not yet fully grown.

The Great Ant-eater seems to be scattered over a wide extent of South America—Guiana, Brazil, and Paraguay, being its places of abode. It is a stout animal, measuring from the end of the snout to the tip of the long tail six or seven feet, of which the tail takes nearly the half; so that the actual size of its body is much reduced. In Paraguay it is named *Nurumi* or *Yogui*. The former name is altered from the native word for *small mouth*, and indicates a striking peculiarity in its structure. The Portuguese call it *Tamandua;* the Spaniards, *Oso hormiguero* (*i.e.* ant-hill bear). In Paraguay it prefers sides of lakes where ants, at least termites or white ants, are abundant; but it also frequents woods. In Guiana, Mr. Waterton found it chiefly "in the inmost recesses of the forest," where it "seems partial to the low and swampy parts near creeks, where the troely tree grows."* It sleeps a great deal, reclining on its side, as the visitor to the Gardens may frequently see it do, with its head between its fore-legs, joining its fore and hind-feet, and spreading the tail so as to cover the whole body. Huddled up under this thatch, it might almost be taken for a bundle of coarse and badly dried hay. The tail is thickly covered with long hairs, placed vertically, the hairs draggling on the ground. When the creature is irritated the tail is shaken straight and elevated. The natives of Paraguay, like other persecutors of harmlessness, kill every specimen they meet, so that the ant-eater gets rare, and so rare is it on the Amazon that Mr. Wallace, who travelled there from 1848 to 1852, honestly tells us he never saw one. He heard,

* Wanderings in South America, (Third Journey) p. 159. (Ed. *1839.)*

however, that during rain it turns its bushy tail over its head and stands still. The Indians, knowing this habit, when they meet an ant-eater, make a rustling noise among the leaves. The creature instantly turns up its tail, and is easily killed by the stroke of a stick on its little head. *

The ant-eater is slow in its movements—never attempting to escape. When hard pressed it stops, and, seated on its hind-legs, waits for the aggressor. Its object is to receive him between its fore-legs; and one has only to look at its arms and claws in order to fancy what a frightful squeeze it would give. Nothing but death, they say, will make the creature relax its grasp. It is asserted that the jaguar—the tiger of South America, and the most formidable beast of the New World—dare not attack it. This Azara, with good reason, doubts. A single bite from a jaguar, or the stroke of his paw, would fracture an ant-eater's skull before it had time to turn round; for the movements of this edentate quadruped are as sluggish as those of the toothed carnivorous tyrant are rapid.

As seen in its handsome and roomy cage, the ant-eater gives us an impression of dulness and stupidity; and always smelling and listening and looking at the door where its keeper introduces its food, its mind, when awake, appears to be constantly occupied about "creature comforts." In the course of the day it laps up with its darting tongue, and sucks in through its long taper snout, a dozen eggs, and almost the whole of a rabbit, chopped into a fine mince-meat. With such dainty fare, and with the anxious attention which it receives from its sagacious curators, it is scarcely surprising that it thrives; and when the warm weather comes, it will be a fine sight to see these animals enjoying the range of a paddock, which will doubtless be provided for

* A Narrative of Travels on the Amazon and Rio Negro. By Alfred R. Wallace. 1853. P. 452.

their use, and exercising their brawny fore-limbs and powerful claws in pulling down conical mounds, which may remind them of departed joys and balmier climes. Nor will it be the least charm of the spectacle that it will enable us to compare this living species with other *Edentata* of South America—such as the Megatherium, now only found in the fossil state, but so admirably restored by Mr. Hawkins for the Crystal Palace.

We need not dwell on the admirable adaptation of the ant-eater to its position and to its few and simple wants. To those who have not studied "the works of the Lord," it may appear uncouth and unattractive. Compared with a dog, it is stupid; and alongside of a lion, it is slow. It has not the symmetry of the horse, nor the beautiful markings of the zebra and leopard. But its Creator has given it the instincts, the form, the muscular powers, and the colours which best answer its purpose. And no one can say that it is plain and ugly, who looks at its legs so prettily variegated with white and black, and its noble black collar.

Those of our readers who wish further information will find it in the "Literary Gazette," for October 8, 1853. In that article it is easy to recognise the Roman hand of the *facile princeps* among living comparative anatomists. Long may it be before either of our new acquaintances in the Garden afford him a subject for dissection; but when that day arrives, we hope that he will not delay to publish the memoir.

A. W.

PAPERS ON THE AIR AND SKY.

No. IV.

CLOUDLAND.

WHEN we gaze upon the clouds, that in all the brilliancy of gold and purple spread their ever-shifting forms about the setting sun, we could fancy them a fairy world,—the abode of beings as bright and ethereal as themselves. But our balloon voyage has taught us that, like many of the dazzling pleasures of earth which intercept, as they do, our vision of the bright heaven beyond, their beauty disappears on our approach, and when we reach them, they prove to be nothing but thin, cold mist.

"Dost thou know the balancings of the clouds—the wondrous works of Him which is perfect in knowledge?" asked Elihu of old. The more we seek to know them, the more shall we admire His wondrous works.

We must first study some phenomena nearer at hand. We all know that a constant evaporation is taking place from the surface of the ground. Water exposed to the air, if not added to, is sooner or later dried up; and so from every lake, river, or sea,—from every moist field or leafy shrub, vapour rises into the atmosphere, and forms an insensible ocean around us, ready to become apparent should the air grow too cold to retain its invisible freight. On a clear night this is frequently the case. The earth, warmed during the day, radiates its heat into the starry spaces, and thus is cooled down much below the temperature of the air passing over it; and then ensues a deposit of *dew*, just as we have often observed when a glass of cold water, fresh drawn from the spring, is immediately covered on the out-

'side with pearly drops of moisture. It is a popular error to suppose that the dew falls. There is no descent of dew from the clouds, it is formed on the cold object itself; yet if we place anything between the earth and the sky, this will protect the ground from the deposition of dew, not by intercepting it, but by preventing the radiation of heat, and the consequent cooling. *Hoar-frost* is merely frozen dew, and, like it, can only make its appearance when the air is well charged with moisture.

Let us suppose this cooling of a stratum of air to take place, not on the surface of a solid body, but above the ground, through the admixture of colder air, or some other cause; condensed vapour will equally be produced, and it will float along a light *mist*, such as we often see over streams or meadows in the morning or evening. What we call a *fog* is precisely the same thing, but somewhat aggravated: for example, that notable species which loves to visit London occasionally during the fashionable season, and which derives its dark yellow impenetrability from the smoke which it takes captive on its approach, and drags along with it.

Although the fog and mist are actually condensed vapour, they are not always sensibly damp. However, it does frequently happen that the vesicles of water are large, and the traveller becomes as thoroughly wet as though he had been walking through a shower. Sometimes, too, small drops fall, and the mist gradually resolves itself into a drizzling rain.

Now this is precisely what takes place in the upper regions of the atmosphere. The *clouds* are only floating mists, often of gigantic size. The air that has sucked up water from the earth, or ocean, on ascending reaches colder spaces, and its excess of moisture must needs separate and hang, perhaps in huge masses of condensed vapour, above *our* heads. Indeed there seems a peculiar provision for

this, in the deep stratum of air encircling our globe at some distance, where, as remarked in our last number, the thermometer is constant. Welsh says of it, "The interruption of the decrease of temperature is accompanied by a large and abrupt fall in the temperature of the dew-point, or by actual condensation of vapour;" which, in fact, shows that, at a certain point, the air is always moister than it is a little higher or a little lower. Should there be anything to cause the aggregation of the vaporous seas overhead, *rain* is formed, descending slowly at first, but gaining impetus as it falls, and as the drops run together, or grow by the condensation of fresh water on their surface. Should the temperature of the cloud be below the freezing-point of water, it is *snow* that is gradually shaken down to clothe the frozen earth with its spotless mantle of winter. Or should the young raindrop be launched through a cold current of air, it may be chilled into *hail*, and growing as it falls, by fresh additions of ice, it may bring down to the summer fields the cold of the airy spaces.

In the transformations of water, we may observe a circle analogous to that described in a previous paper, as occurring with another constituent of the atmosphere—carbonic acid. The fountains and springs pour their waters into the rivers, and these again into the sea, but the water is not lost to the surface of the earth; for from sea, and spring, and land, it again rises to the sky, again to descend and scatter freshness, health, and joy, over the thirsty creation, and thence to pass away into some new phase of its ceaseless career of beneficence. Well might the poet make the cloud describe herself:—

> "I am the daughter of the earth and water,
> And the nursling of the sky;
> I pass through the pores of the ocean and shores,
> I change, but I cannot die."

The amount of rain falling in different localities is extremely various. On the east coast of England twenty-four inches of rain are said to fall during the course of the year, while on the west coast it amounts to thirty-five inches. Erin seems to owe her character as the "Emerald Isle" to the fertility caused by the equable temperature and frequent showers. In Sahara, and in many parts of Persia, rain is scarcely known, and the countries are arid and desolate. In Peru, also, rain never falls; but its absence is, to a certain extent, compensated by copious dews: while, on the other hand, in many parts of the world, vastly more rain descends than on our country,—the most celebrated in that respect being a place on the western slopes of the Ghauts in India, that rejoices in the appellation of Mahabuleshwar, where the prodigious quantity of 283 inches (nearly 24 feet) is said to fall annually, and that almost entirely between June and September. Indeed, it is in a hill country that rain is usually most abundant; and it may frequently be observed that the summit of a mountain is covered for days together with a cloud, although a steady wind may be blowing, and not the slightest mist may be seen elsewhere. This cloud is not a stationary one, but it is the condensation of the vapour in the passing current of air by the cold mountain-top; and it either descends as rain, or passing on is re-dissolved by the air. Low countries often receive more rain than high table-lands, partly because, through the deposition of moisture from the air on the falling drops of cold rain, more water actually falls in the same shower near the earth than in the upper regions of the atmosphere. Thus, the rain-gauge at the top of York Minster indicates a less fall than takes place in the city below.

The vapour of water passing into the atmosphere displaces its own volume of air, and as it is much lighter than *the nitrogen* or oxygen, the atmosphere, when charged with

it, presses with less weight upon the surface of the earth, and thus cannot force the mercury to so great a height as it would otherwise do in the tube of the barometer. This is the principle of the weather-glass ; for the fall of the metal is caused by and indicates that condition of the air in which, from its being greatly saturated with moisture, the formation of dense clouds and the descent of rain may be expected. The warm, south-west wind, blowing from across the Atlantic, also produces the same effect by its local expansion of the air.

To watch the infinitely varying forms of clouds may be a source of constant pleasure. At one time we have the large white masses, called by meteorologists the *cumulus*, floating overhead, or skirting the horizon like a range of snow mountains ; then they may gather into a black, portentous rain-cloud, or *nimbus*, obscuring the whole expanse of the sky; or they may be dissipated into the long-drawn *stratus*, or the feathery *cirrus*, sweeping in light mist-films across the blue vault of heaven ; and these may be silvered by the passing moon, or tinged with gold by the sun, especially when, rising or sinking to rest, his slanting beams are refracted by the vapour in brilliant hues.

Of course the subject of clouds would not be complete without an allusion to the grander phenomena of storms, and their attendant thunder and lightning ; but these must be reserved until another occasion, when we can enter fully into the philosophy of the winds. J. H. G.

WILDBAD: ITS WAYS AND ITS WATERS.

BEING THE BLACK FOREST, CHAPTER THIRD.

WILDBAD owes its renown to warm water. Thermal springs flow copiously from the granite rock, and have been famed, it is said, since the days of the Romans. The water contains no peculiar ingredient. It neither smells of rotten eggs, like the springs of Aix-la-Chapelle; nor has it a strong flavour of chicken-broth, like the Kochbrunnen: it is not coated with a greasy scum, like Wiesbaden; nor, like Langen-Schwalbach, does its muddy mess remind you of "mulligatawny." Containing in minute quantities the usual salts of lime, potash, and soda, it is singularly clear and pellucid; and neither by its nauseous taste nor its nasty appearance does it help the faith and try the courage of the invalid. It is possible that there may reside in it some thermo-electrical virtue, or other latent principle; but nothing meets the senses more medicinal than the New River or the Compensation Pond; and could a series of baths be arranged at different temperatures from 90° to 100°, and so contrived, that at the end of the thirty minutes they should be exactly as warm as at the beginning, it might be possible to create a Wildbad at the foot of Primrose Hill or the Pentlands. Rising through the sandy floor of the pool direct from the caldron underground, the water here maintains an equable temperature throughout, and if he hits on the medium most comforting to his sensations, the arthritic or neuralgic patient finds himself in a watery elysium through which it seems as if pain could hardly penetrate; and after a dozen repetitions, the charm begins to work with the double efficacy of conscious convalescence.

Like most of the German spas, Wildbad is provided with a large "stifthaus," where poor patients are accom-

modated gratuitously for a month or six weeks; and one of the most gratifying features of the place was the spectacle of these honest, home-spun peasants pacing to and fro in the midst of the grandees, or enjoying a quiet talk in one of the many arbours along the Enz. Perhaps, on the whole, they were the most grateful visitors. If a rich man missed a cure, he had the satisfaction of returning to acres as broad and a mansion as large as those he had left; but it was only the day-labourer who, in taking back to his cottage suppled joints and elastic tendons, carried home at once health and a fortune.

There were not many visitors. Most of them were Germans,—plodding and persevering health-seekers. There was a Frenchman, who was said not to have slept any for three years. Nothing could exceed the woe-begone and haggard expression of this poor man. There was a Russian princess,—an old lady whose travelling vehicles were houses on wheels. Her own was a much more elaborate and costly conveyance than Napoleon's carriage, into which our readers may have climbed at Madame Tussaud's. It was a parlour, bed-room, and oratory, all in one; and amongst its numberless equipments, it was provided with an ivory crucifix and the other requisities of Greek worship. And there was another Russian family,—the most pleasant people whom we met at Wildbad. They had English governesses for their children, and by their own urbanity and intelligence, they gave us quite a prepossession for the Russian aristocracy. Of English there were few, and none of them were gay. Unlike his neighbours of Baden and Nassau, the King of Würtemberg allows no gambling; and it would have been a comical ball where half the company must have hopped upon crutches.

The right way at Wildbad was to rise at five in the morning, or a little sooner. You then saw the mist slowly

moving up the hills, or breaking into clouds, through which came a clear deep azure; or entangling itself in the pine-tops like a fleece of ethereal merino. And you saw the waking-up of a German village; or rather, you saw that it had been awake a good hour before you. The shops were open, and the Tyrolese glover was trudging off to his booth at the Bellevue. The cow-herd was going his rounds, and from her comfortable apartment on the ground-floor, each little cow was ready to join her companions and set out for the forest-clearing. In the opposite direction, an army of goats was marching to some mysterious fastness where they spent the day, but where it never was our luck to surprise them. And with his dinner of black bread in his wallet, the swine-herd was blowing his horn; and, like the passengers of a suburban omnibus at the breakfast hour, you could see the dispositions and habits of the porcine population. Good piggies and steady old boars would be standing on the causeway ready to join the cavalcade, and with a few grunts of neighbourly recognition, they took their places like orderly and respectable people. But there were always some laggards; and it was amusing to see a frantic juvenile tearing down the street, his mouth so full of cabbage that he could not hail the conductor, and then to hear the recriminations for keeping the company waiting: whilst some incorrigible, pursued by an angry damsel, was coming up in the distance, squealing a protest against fast times and early rising.

At six the diligence set out for Durlach, and having thrown off the only restless element,—the packed-up passengers,—Wildbad relapsed into its diurnal quietude. The street grew hot. The children were hived in school. The natives were up the mountain, and the strangers were asteep in tanks of tepid water. And it was almost like a Sabbath noon when people are at church, to go out into the silent

valley. If you were not doomed to spend this interval in the "Herrenbad," listening to the grunting and plunging of the adjacent amphibia, you could dive into the forest, and gratify the British *penchant* for exploration by following up some track till it reached its usual terminus in a charcoal heap or pile of timber.

The less enterprising had nothing for it but books and a solitary "Galignani's Messenger." Some of our party had a turn for entomology, and in this pursuit they derived material assistance from an able-bodied invalid, who had as decided a turn for gymnastic exercises. Any bright morning, Mr. —— might be looked for at the farther end of the Promenade; and if you wish to know which is he, *ecce signum!* — the green flag of a long-handled insect-net describing strange curves and flourishes high in air. Watched at a respectful distance by the solitary policeman of the town, to whom he is a perplexity and a problem, Mr. —— maintains a philosophical indifference, and keeps whisking at invisible apparitions overhead, or flailing with maniacal energy at the linden-trees, till a mischievous fritillary lures him off like a will-o'-the-wisp through bog and through fen. At last the green flag bolts over a precipice, and, to the great relief of the officer on duty, Mr. —— is seen with drooping colours in full retreat for head-quarters, where some sartorial mystery is likely to detain him for the rest of the day.

At one was the universal dinner, and re-animated by fifteen courses, the sufferers had strength to creep as far as the garden alcoves, where the Frenchmen played cards or dominoes, and the Germans smoked and drank coffee. Then was it, too, that we often watched with great interest the arrival of the Wildbad fishmonger. To provide ichthyological delicacies for a hundred guests in such an inland place, and at the height of summer, was a difficulty in our landlord's housekeeping. But it was adroitly met. There

came from time to time a cart with a water-barrel; and when the barrel was opened, the fish began to spring. It required considerable activity to weigh the spoil and transfer the gasping net-full of trout or grayling to the reservoirs uninjured; and on these occasions, Herr Klump, always great in command, came out particularly sonorous and stately. In this way we saw many hundredweight of beautiful fishes transferred from their native Danube to the live-boxes of "The Bear."

An hour before sunset a brass band played excellent music, and everybody promenaded. And the sunset came early,—an hour sooner than it ought by the almanac. This, of course, was owing to the high hills to the westward. And, as the dew was considered very dangerous, before nine o'clock the streets were clear and Wildbad was sleeping.

WORDSWORTH'S CELANDINE.

(*Ranunculus Ficaria.*)

At this season we are anxious to introduce to our readers a little flower which may be found in almost any warm hedge-row, or on the slope of any sunny field. The first cousin of the crow-foot and buttercup, it is much more fragile; and although so plentiful in April, no gold could procure a single blossom three months hereafter. It was Wordsworth's favourite flower; and he has devoted to it three of his most charming poems.

> "Pansies, lilies, kingcups, daisies,
> Let them live upon their praises:
> * * * *
> There's a flower that shall be mine,
> 'Tis the little celandine."

In the spring of 1846 the writer of this transplanted from Copenhagen Fields to a little grass bed in his London garden some specimens of the celandine; and, on a bright sunny day soon after, he was gratified beyond measure to see its golden rays dotting the green back-ground. "I shall write to Wordsworth!" exclaimed he to his wife; and to Wordsworth, with whom he had previously corresponded, he accordingly wrote; and before the end of the week the post brought a specimen, now amongst the *spolia opima*, enclosed in a note from the venerable laureate:—

"Rydal Mount, 16th April, '46.

"Dear Sir,—I have great pleasure in complying with your request, and herewith send a specimen from a sunny slope within a few yards of my house, which I call Celandine Bank; it is so richly starred with that favourite plant of mine. . . . . .

"I remain, dear Sir, faithfully your much obliged

"Wm. Wordsworth."

Such is his faith in a poet's sympathy, the writer is sure that, had he asked Chaucer or Robert Burns for a daisy, they would have sent him one.

This is the right season for commencing the study of botany, and should any of our readers wish to begin, if they have not the opportunity of attending a class, they cannot do better than procure the first volume of Hooker's "British Flora," along with some elementary treatise. The "British Flora" describes all the wild plants which flower in Britain; but in order to understand the descriptions, it will be needful to study some Introduction to Botany, such as Smith's, or Lindley's, or Balfour's, or Henfrey's. And as a first lesson in the Natural System, there can be no better example than our small Celandine. F. L. S.

MY BROTHER'S KEEPER.

CHAPTER IV.

I cannot like the Quakers (as Desdemona would say) "to live with them." I am all over sophisticated — with humours, fancies, craving hourly sympathy. I must have books, pictures, theatres, chit-chat, scandal, jokes, ambiguities, and a thousand whim-whams which their simpler taste can do without.—CHARLES LAMB.

THE doctor entered his gig and drove swiftly up Broadway, until the sound of its paving-stones gave place to the regular beat of his horse's feet upon the frozen ground. Swiftly on — past houses and stores, the main body of the city, and then the miserable advanced posts of its outskirt buildings. For the most part the doctor took a vista-like view between the two brown ears of his horse; but now and then his wig made a half revolution towards the one adventurous row of houses that marked the south side of Walker Street, or when the shouts of the skaters on the great pond at the corner of Canal suggested various ideas that were pleasant only in a professional point of view. But every boy there skimmed over the smooth ice in utter defiance of the doctor, his skill, and his wig; and his good horse Hippocrates, unconscious that the weight he carried behind him was in any part made up of learning, left pond and skaters in the far distance, and trotted nimbly on through the region of market gardens, orchards, and country seats.

As near as might be to one of these the doctor checked his horse,—or I should rather say, as near as he chose; for though the iron gate was too far from the dwelling to let even its closing clang be heard, the many tracks on the road beyond shewed that few vehicles stopped where the gig had done. But the doctor preferred walking. The long ride had made him well acquainted with the state of the

atmosphere, and Hippocrates was merrier than he when they reached the gate. So leaving the boy in the red comforter to do the best he could under the circumstances, Dr. Buffem swung to the gate, and strode away through an avenue of tall trees to the houses. In summer they would have screened him from both sun and wind, but now the leafless branches only mocked him with the slight shadows they cast; and the pitiless breath of winter swept whistling through, until every twig shook and shivered in its power. The fallen leaves stuck crisp and frozen to the ground; and if there were any at large they had retreated into corners, and there lay huddled together.

Dr. Buffem pursued his walk and the wind pursued him,—the doctor in extreme dissatisfaction at the pinched face of nature. His own was not suffering in the same way, for not even the wind could get hold of such cheeks; but still it was great presumption for the wind to try: and the curiosity which would fain have made itself acquainted with the lining of his coat, was no less unwarrantable. And though the sunshine was by no means so inquisitive, the doctor made up his mind that too much reserve was just as bad as too little. So he tramped along, pounding the frozen ridges with his heavy boots, and shaking himself from time to time to make sure that the enemy had carried nothing but the outworks. Even the nicely swept porch, and the roses that were trimmed and trained beyond the wind's power, had not one approving look. Dr. Buffem made for the knocker; and after a succession of raps that might have answered for half the Peerage, he gave an echo to the same upon the porch floor, while his eyes sought Hippocrates in the distance.

The knocks were immediately successful, but the doctor's back took no note thereof.

'The door stands open, friend Buffem,' said a quiet voice. '*Does thee* require aught? The wind is cold.'

'Require?' said the doctor, wheeling round—

'"Rest and a guide, and food and fire."

'The wind's as keen as nineteen honed razors,—no sort of a wind to kiss pretty faces. Where are the men?'

'James Hoxton, as thou knowest is yet ill,' replied the damsel, 'and Caleb Williams hath gone in search of letters,—and moreover tendeth not the door at any time.'

'The wiser man he,' replied the doctor. 'But James Hoxton's as well as a fish out of water—wriggling his way back at full speed. What's the news up in these Northern regions?—how long since the mercury shook hands with zero?'

'Here is fire,' said the damsel, opening a side door into a small specimen of wax work, 'and here thou mayest leave thy clogs. When thou art warm I will conduct thee upstairs.'

'Clogs?'—said the doctor. 'Well—"every Quakeress is a lily,"—but even lilies come out of what may be called mud's raw material. How thee must love John Frost, friend Rachel. Now then—"Lead on!—I'll follow thee!"'

Along the wide hall and up the broad easy steps of the old staircase, went Rachel in her sad-coloured gown and white cap,—fit genius to preside over so spotless a domain; and after her the doctor, who with some difficulty made her tripping steps the measure of his own. Trip, trip—a soft stuff-rustle and a slight key-jingle their proper accompaniment; while the doctor's heavy tread came like some strange instrument, played out of time.

Rachel crossed the upper hall, and opening the door into a room that stretched along that end of the house, she stepped back and left the doctor to enter. The room looked like the head-quarters of the Fairy Order. Like snow-wreaths hung the curtains—like patches of snow lay napkin and toilet cover and bedquilt. The furniture was made of self-adjusting materials,—the table-cloth probably shook *itself*. More polished than 'our best society' were the and-

irons, and at the same time more reflecting; while the ashes, too well instructed to fly about the room or fall on the hearth, followed the soot up chimney. Too dry to sing, the wood burned noiselessly; only the dancing flames shewed some vagaries, and declared themselves beyond the sphere of Quakerdom.

In a quiet tête-à-tête with the fire, Dr. Buffem found his patient; or rather he found her first in one of the reflecting andirons, which shewed the face and figure that her high-backed chair concealed.

Her cap, her grey dress, the smooth kerchief that lay folded across a breast as unruffled, proclaimed her to be of Rachel's order; but the pure sweetness of her face, the gravity without a touch of moroseness, spoke a yet more honourable distinction;—a heart unspotted from the world; a faith that having laid hold on eternal life, took all in the life that now is with meek tranquillity. If there was one ruling expression in her face, it was of charity—"which suffereth long, and is kind; thinketh no evil; is not easily provoked; beareth all things, believeth all things, hopeth all things, endureth all things." And as at the advancing step she half arose, and turned to greet her visiter, Dr. Buffem thought he had rarely seen a finer face.

'Friend Raynor, how art thou?' he said, flourishing out both hands. '"Do you think me a swallow, an arrow, or a bullet? Have I, in my poor and cold motion, the expedition of thought? I speeded hither with the very extremest inch of possibility"—unless indeed I had run over Rachel.'

'Friend Buffem, thou art welcome,' said the quakeress with a smile. 'I trust thy haste hath not put thee to inconvenience. I scarce expected thee to-day,—perhaps, said I, he will be better pleased to come to-morrow.'

'No indeed,' said the doctor,—'though to-morrow had been June, while this is without doubt December.'

'The *cold hath not* then abated?'

'Not the first fraction of a degree,' said the doctor. 'It is the most confoundedly sharp day we've had this winter.'

'Thee must indeed feel it severely if thee indulges in such expressions,' said the quakeress gravely. 'I have always found, friend Buffem, that inward chafing doeth far less good than that which is without.'

'Ay, so you say,' replied the doctor, as he toasted his hands impartially over the fire, 'but I like a little of both. Men's hair won't stay brushed, do what you will, and it won't be the real thing if you try to make it. No, no—get your temper up to boiling point and then fizz round a little, —my word for it you'll get warm.'

'Warm after the manner which savoureth of cold heartedness.'

'Not a bit of it!' said the doctor, who was putting himself through all his paces; 'cold is flat, and never savoured of anything. You let the water run in upon the fire and it'll put it out—therefore heat up your fire and blow up the water. Nothing like letting off steam once in a while. Whizz!—Puff!—there you are, reduced to cold water again; and nobody killed, either.'

'Nor hurt?' said the quakeress smiling. 'And thee would get up steam for the very purpose of letting it off, to no end?'

'Well,' said the doctor, 'I should hope it would have an end, certainly. As to the rest, most people keep it on hand —blow it off too,—saves an immense number of boilers.'

'It maketh a most uncomfortable noise the while,' said the quakeress,—'and hath not much sympathy with the command "Study to be quiet."'

'But reflect upon the terrors of an explosion!' said the doctor. 'You don't suppose the same lesson is set for everybody. It's not in all human nature to be as patient as you are, my dear lady.'

'*Nay, it* lieth not in nature at all,' she answered

earnestly, 'and yet it may be attained. "Great peace have they that love thy law, and nothing shall offend them." But who requireth thy care at Thornton Clyde's? I hear thou hast been much there of late.'

'Ah?' said the doctor—'who told you so? "Now when I ope my lips let no dog bark."'

'Rachel must needs go into town yesterday,' answered the quakeress, 'and not only did the purse find work, but the tongue. Thee knows young girls will be gossipping. But what aileth them there? and who? not Rosalie?'

'No,' said the doctor,—'Hulda. Only scarlet fever.'

'Poor child! poor dear child!' said the quakeress anxiously. 'And is she very ill? does thee think, speaking after the manner of men, that there is much danger?'

'Not much'—said the doctor,—'speaking, as you say, after the manner of men. Speaking after the manner of women, she has been wonderfully sick. But she's better now.'

'It rejoiceth my heart to hear thee say that. Poor child!—and her dear sister! Sorely tried she hath already been, and hath borne the trial like a true child of God.'

'Sterling stuff,' said the doctor. 'But the child is better; so you may put all thoughts of a visit out of your head. I see what you're meditating. You can't be let out of the house yet. I want to set you up before our travellers get home.'

A moment's smile was followed by a look of deep grief and anxiety.

'Alas this war!—when will they get home?' she said clasping her hands.

'See here,' said the doctor,—'don't you get up any steam; it wouldn't suit your constitution. What's the war to do?—I never heard in my life that a declaration of war kept old Boreas in order. Let them set their sails,—he'll give chase. What's the date of their last letter?'

'Far, far back; and doubtless Henry hath written since, but the letter hath failed to come. He pineth to be at home now.'

'I'll warrant him!' said the doctor,—'and for a brush with the English, too.'

'Nay, he saith only that all should be in their own country at such a time,' answered the quakeress deprecatingly.

'Ay—that's it. Why didn't he come last summer, when the war broke out?—travelling is shockingly inconvenient now-a-days.'

'He would have come then, doubtless, only Penn—that silly boy—being ill, it was but brotherly kindness not to leave him.'

'Got himself stabbed in some brawl with those German students, didn't he?' said the doctor. 'I recollect. But he ought to be cured by this time, if there's a respectable surgeon on the Continent.'

'Henry wrote that he was better,' said the quakeress; 'and if nought hindered they were to take passage in the War Hawk on the first day of this month.'

'Well she's not in yet,' said Dr. Buffem, 'but the United States is. I suppose you've read the papers this morning?'

'Nay,' she answered.

'Glorious victory!' said the doctor rubbing his hands. 'Decatur has taken the Macedonian, forty nine guns, and but twelve men killed and wounded.'

'And in the other vessel?' said Mrs. Raynor.

'A hundred or so—and two hundred prisoners. Glorious, isn't it?'

The satisfaction on his face was so far from being reflected, that Doctor Buffem held up both hands, exclaiming,

'A traitor, as I am alive!'

'Truly friend,' replied the quakeress calmly, 'I trust thy life is much surer than thy assertions. But who can

glory or who can joy in such bloody doings!—They seem not much in the spirit of "Love your enemies." '

'Mustn't love your enemies so well as to let 'em eat you up, Mrs. Raynor,' said the doctor—'no kindness in that,—and for the rest Decatur's as kind hearted a man as ever lived. Now here for instance—when Capt. Carden came on board the United States to give up his sword, Decatur told him he could not take the sword of a man who had defended his ship so well, but he would receive his hand. Isn't that a christian spirit?'

'It seemeth like it—though truly forgiveness should be easy to the conqueror. But the War Hawk claimeth not to be one of these fighting vessels?'

'I guess she carries Letters of Marque,' said the doctor with a satisfied air.

'And may she then even capture other ships on her passage?'

'Capture them? of course she may—if they don't capture her,—that's the trade our captains are driving just now. Better come into port with a prize or two than be carried off by an H. M. cruiser.'

'Danger either way! I would I had forborne the joy of his presence and bade him stay there!'

She rested her head on her hands, but the heaving of her breast alone told of the struggle within.

'Come, come,' said Dr. Buffem, in some doubt how to treat a case so far beyond the range of his professional skill,—'he wouldn't have staid there if you had bade him. And what then?—many a pretty man has smelt powder without getting singed. The chances are twenty to one of his getting home in most inglorious safety.'

The quakeress looked up, and her face was very calm—not even her lip trembled.

'Nay, friend Buffem,' she said, 'not so! There is

neither chance for nor chance against; but the will of God. And truly I know that he ruleth the winds and the waves; and holdeth the hearts of kings and doubtless the hearts of seamen too—howbeit the flesh is weak, and faith sometimes faileth. My all is in his hands,—I will not fear to leave it there.'

'That's right, that's right,' said the doctor, assenting to her means of comfort as probably the best that could be had for her under the circumstances; 'keep your spirits up always, and I'll look out for the War Hawk and bring you the first news of her. But I want you to get stronger before she comes—there'll be one pair of good keen eyes on board.'

The mother's own filled at his words, but she made no answer.

'I guess they'll be the best cure, after all,' the doctor added. 'Nevertheless I think I shall send you away for a month, not for your sake at all, you know—for his. What do you say?'

'I will go whither thou wilt send me for that cause. But he is so well, they say, and so joyful with the thought of returning.'

'Hasn't heard enough from home to content him, I doubt,' said the doctor.

'I have written even more than seemed needful,' she answered smiling, 'but he hath strangely missed of some of my letters.'

'Well then it's all settled,' said the doctor. 'You're to go South, and I'm to look out for the War Hawk, and she's to come just when she likes. Friend Raynor I wish thee good morning.'

(*To be continued.*)

ASCENT OF THE RIGI.

THE Rigi is a mountain in Switzerland standing between the Lake of Zug and the Lake of Lucerne. It rises nearly 6000 feet above the level of the sea;—5900 feet is Dr. Forbes's statement in his "Physician's Holiday;" 5700, Murray's. The summit of the mountain is 4400 feet above the Lake of Zug. There are three lines of ascent, on different sides, all uniting before reaching the top. As we came from Zurich, our road was that which starts from Arth, a village on the margin of the Lake of Zug. We set out from Zurich, in a hired carriage, at seven o'clock, and arrived at Arth about two. After a slight dinner we prepared for the ascent. We were a party of four,—two ladies and two gentlemen. Horses were provided for the ladies. They carried, however, besides, our necessary luggage, with a good supply of cloaks, shawls, umbrellas, and railway-wrappers,—a precautionary provision against cold and wet. My travelling companion, a younger man than myself, in full health and accustomed to Switzerland, preferred of course to walk; and as this was the beginning of such efforts with us, I determined to test my ability, and to walk too. I bought an alpenstock; looked up to the point I had to reach, and had resolved to reach on foot; helped the ladies into the saddle; and then set myself to the realisation of my great purpose!

From Arth to the top of the Rigi is a measured distance of nine miles; the elevation, as has been mentioned, 4400 feet. To give a Cockney an idea of what these statements imply, I will request him to take his stand at the end of Cheapside, and to look up to the top of St. Paul's. You

see the cross? "Yes." Place another St. Paul's upon it. "I have." Another. "Done." Another upon that. "All right." Another;—another;—another;—another;—another; another;—*one more.* That will do. You have got eleven St. Pauls' rising up there, one upon the other, far, far above the clouds. I have to walk up, then, to the culminating cross, on the summit of that highest of the cathedrals,—which will glitter in the sun long after he has set to the inhabitants alike of city and suburb; and I have to reach it by starting from Charing Cross, say, or one of the parks, and winding my way up the steep ascent, after such a fashion as I shall now describe.

We left Arth about three o'clock. It was a beautiful afternoon. There were other travellers, both ladies and gentlemen, some on horses, some on foot. The preparation and departure had a good deal about it of stir and excitement. Our road at first lay, for about two miles, up a very gentle ascent—so gentle as to be hardly perceptible. This brought us to the village of Goldau. I walked these two miles with stern deliberation; in a light great-coat, in which I had travelled from Zurich; and as if I was just having a quiet, easy stroll. The pedestrians of the other party of travellers passed me. They seemed puzzled by my apparent indifference,—so little like their own earnest strides. Was it weight? or age? or philosophy? or fatigue? They could not tell. I could. I meant to husband my resources; to take time that I might go the faster; or, at any rate, to achieve what I had undertaken without straining or painful effort. At Goldau the pedestrian can procure a horse, if he chooses to change his purpose. I was appealed to whether I had not better avail myself of this last chance? "No." "I tell you I shall *walk.*" "Go on."

Our road now turned to the right. It gradually led us *in front of* the mountain, on the face of which there seemed

to be cut a zig-zag path, up which we were presently to toil. From Goldau to the commencement of this path, a distance of a mile and a half or two miles, the ground is rude and uneven. It is studded everywhere with great masses of rock, which look as if they had been shot, like immense cannon-balls, from some distant height, and had half buried themselves in the ground in a slanting direction, where they had stuck ever since. This, which appearances so naturally suggest as probable, actually took place in fact; and that, too, within the memory of man. This second portion of the journey passed, the ascent of the mountain began in earnest. We entered on the zig-zag path just mentioned. It soon became very precipitous. In many places it was literally a sort of rude staircase, as steps were formed by pieces of wood being put across,—a device, partly intended for the preservation of the path itself, partly to aid the traveller, whether man or mule. On encountering this portion of the ascent, I gave my great-coat to the care of one of the guides, and prepared for the vigorous use of the alpenstock. Travellers, indeed, hereabouts, may occasionally be seen, half in sport half in earnest, catching hold of the tail of a horse, and thus getting the advantage of a good pull up the acclivity. It does not seem very dignified this,—nor merciful;—nor, in the case of some of the animals, *brotherly;* but it falls in with the laughing humour which mountain air seems to create and to diffuse, and gives birth to those jokes and sallies, which often greatly help a man up the hill of life. After a time we reached a level piece of ground, on which there is erected a small wooden building. Here something may be obtained in the form of refreshment, of which the guides, at least, will not object to partake; and here, too, the traveller may rest a brief interval, before attempting the other half of this first and steepest portion of the ascent.

From this point, looking back over the path from Goldau, and across the valley out of which we have toiled, we get a full view of the ROSSBERG, as it rises before us to the height of 4958 feet above the level of the sea. On its side are the marks and scars of the memorable landslip of 1806, which hurled the great rocks into the base of the Rigi, to which allusion has already been made. Looking from the Rigi to the Rossberg, the traveller sees, on the heights of the latter, a long, broad, bare surface, as if the earth had been scraped off, or as if it had been seared and hardened and rendered for ever incapable of verdure. This is the place from which, on the 2d of September, in the above-mentioned year, about four o'clock in the afternoon, after a few slight warnings, but,—when it once began to move, — in a few seconds, there slid off, into the valley beneath (a fall of 1500 feet), a portion of land three miles long, 1000 feet wide, and 100 feet deep!—carrying on its surface houses and barns, fields and vineyards, living men, women, and children,—burying beneath it the then existing village of Goldau; filling up the greater part of a large lake,—dashing its waters over the spire of a church sixty feet high; swelling into immense mounds and heaps acres of earth; projecting huge pieces of rock to a distance almost incredible, and with a force which seems to baffle calculation; destroying, in an instant, property to the value of 150,000*l.*, and becoming a mausoleum for nearly 500 human beings!

After a short rest, including the survey of the stupendous memorials of this terrible catastrophe, we started again; and after a second ascent we came to a long tract of level ground. On our right the shoulder of the mountain rose into the sky; on our left was a deep valley,—its opposite side precipitous, but the summit covered with verdure and dotted with cattle. The evening was approaching; shep-

herds were seen moving above, some of them sounding the ranz-des-vaches,—the effect of which, coming to us across the ravine, was very pleasing. At some distance before us, the side of the mountain up which we had again to climb rose before us, with the little village and church of our Lady of the Snow lying upon it. The ascent did not threaten, nor did it prove, to be so precipitous and painful as the portion we had passed. On the 5th of September a pilgrimage is made to the village just mentioned. All along the path we were now pursuing, were rude pictures representing the last sufferings of our Lord, placed at nearly equal distances, and terminating in a large coarse wooden figure of Christ on the cross, or in the sepulchre, I forget which,—for the whole thing was to me so painful and repulsive that I could not stop to look at it with attention. When we reached the village it rained heavily, and we took shelter in it for a time. While thus waiting, the bell of the church tolled for prayers. We went in, and found three monks saying vespers. They were old men, habited in a very sordid dress of a dirty brown colour, with ropes round their waists. One man and a couple of children, cowering together near the door of the church, constituted the congregation. We soon left them to pursue our journey.

After starting again I rather lingered behind, and allowed my companions to pass on. The ascent became rather more difficult than before reaching the village. I breasted the steep, however, with strong resolution, and was soon cheered by seeing a solitary building coming into view. It stood on the line of the horizon; its outline was clearly defined on the evening sky; and it seemed to encourage a last effort with the promise of a rewarding welcome! "Here, then," I thought, "is the point towards which I am pressing—the temporary home into which I can turn and tarry for the night. I shall be glad to reach it, for I

am rather getting tired. It seems a long way off, though, yet. Never mind. Courage! Keep the path; don't attempt any short cut, as some seem to do, who have to spend in breath what they save in distance. Go straight on—quietly, steadily,—that's it." As I neared the summit the last few steps were taken with vigour. I bounded on to the level ground—stood by the side of my companions, who had got there before me—and congratulated them and myself on what we had achieved. The first words of welcome, however, dashed my joy. "*This* is not the Kulm;—this is only the Staffelhaus. We have half-an-hour's terrible hard tug before us yet. Yonder is our ultimate destination;—up there, on that high point to your right. This, indeed, is a point worth gaining. Here, in front, is a noble prospect:—the Lake of Lucerne, Lucerne itself, Mount Pilatus, and many other objects of interest and beauty;—a little earlier you would have seen a sunset that threw over the whole a glow of magnificence. Even now there is something grand in your position; see, far below there, how darkness is creeping along the valleys, while with us the daylight is still lingering. All very fine, but—*that's* the Rigi Kulm, and we have yet to reach it!" I looked, I fear, somewhat alarmed at the information. The discovery was at once amusing and mortifying; but there was no help for it. I had laid "a flattering unction to my soul," and, as it generally happens in such cases, I had it rubbed off again without ceremony. I was offered a horse, but I would not give in. I had resolved to accomplish the journey on foot, and I was determined to do it. Besides, the path appeared to me such, (and such it proved,) that to climb it on foot would be a much less nervous matter, at least to me, than to attempt it on horseback. I struck the alpenstock into the ground, and started on my last stage — the distance between the Kulm and the Staffel*haus.* It took me, I must confess, more than the pre-

scribed half-hour to accomplish. The ascent of the Rigi, though really no great matter, is something to one on the shady side of fifty; one who in London, all the year round, cannot afford to walk; whose habits are therefore those of a sedentary man, though he may be often moving about. It was a welcome sight — that plain-looking building, perched up there at such a height, as I approached the level on which it stood. The feeling of relief was most exquisite. Every sight was beautiful; every sound music. The air was exhilarating; the prospect magnificent. The guides were all gentlemen; the horses might any of them win the Derby! Every woman was fair; every man heroic! *I had walked up the Rigi;* I had reached the summit—the height of eleven St. Pauls' piled one upon another! I was disposed to be satisfied with everything, and to think well of everybody. It is astonishing how contented—how candid and charitable one becomes in the first flush of success, — under the subtle influence of a secret feeling of self-complacency!

We retired early, with the understanding that an hour before sunrise a horn would be blown in the passages of the hotel, before the doors of the bed-rooms, to summon us to the sight, (if sight there was to be,) for the sake of which we had pierced the clouds. The window of my chamber looked to the East. Before the horn blew I was fully awake, and instantly rose to look at the morning. There were bright streaks already in the sky—the promise and prophecy of what was to come. I waited for no summons, but dressed and was making my way down-stairs when the horn blew to awake the sleepers. Two other persons were doing the same; but on reaching the door, I took a short cut up the rising ground behind the hotel,—gained the platform erected on its summit,—and stood there for a minute or two alone;—alone in that deep silence, and with such a sight around and before me! The impression of that moment can never be erased

by time; it will never be surpassed by any other sight I may ever witness. My recollections of the Rigi all compress themselves into what I felt during that brief solitude. Standing in the centre of that marvellous scene,—having it, as it were, all to myself,—alone with the mysteries of nature,—awaiting a display of the majesty of God!

Before us, in the far East, there were the gradually increasing splendours which were heralding the sun; dark overhanging masses of cloud, catching on their skirts the lustrous magnificence; the whole horizon streaked with long lines of deep red, softened by various shades of the same colour, mixed and interwoven with many others. On our right were the high peaks of a line of mountains rising into the sky, covered with snow, visible at first more from the whiteness of the snow than from anything else,—a long line of pale, spectral, gigantic ghosts. As the light increased, these mountains became more distinct and defined; they seemed to separate and get more apart; they spread over a larger lateral space, showing that they were not ranged in single file, as they at first seemed in the dim twilight, but constituted a phalanx of immense extent over and between, as well as along, which, the eye passed. On the left hand, over the Lake of Zug, and behind us, over the Lake of Lucerne, far below the top of the mountain, there spread out two great seas of white foam, perfectly still, and yet apparently composed of mighty undulations;—the spreading clouds thus hung in the air far above the lakes, while we stood on an eminence far above *them*. This fleecy floor or canopy (for it was both) was not so entire, but that slits and openings were here and there apparent, through which we could see the slumbering waters in the depths below. In that to the west there was an additional feature of interest and beauty;—tops of hills with their fields and houses rose *up and* penetrated through the clouds, looking like bright

green islets floating in the foam. At first, all this, of course, was but half revealed. One thing after another came into view as we changed our position, and as the dawn advanced. The early darkness and the bright stars added much to the first impression. There was such a solemnity in the scene!—a sense of awe came over one;—the great and sublime seemed to stand out in visible embodiment;—a feeling of something like fear and dread shadowed the spirit; one's emotions were strangely mixed,—painful almost from their nature and intensity, yet inexpressibly pleasurable from their richness and depth. This was especially the case during the few moments in which I was alone; the whole scene, in an instant of time, seemed to be caught by the eye and to impress itself on the heart; I was silent, breathless, excited, subdued;—and none near me to distract or disturb! As the splendour of the sky grew and spread, and the rays of the yet invisible sun kept bending towards and approaching the earth, ever and anon some new and striking effect was produced. At length the tops of the mountains caught the brightness, and were suddenly in a flame, as if touched by a divine hand. The edge of the sun was just seen above the horizon; calmly and slowly he emerged at first; and then, as if by a sudden spring, leaped up and appeared full orbed. The light ran down the mountains on one side; their shadows upwards on the other. *Sunrise on the Rigi was over.* Its precursors and attendants had passed away. The grand but momentary magnificence was gone. We found ourselves again in ordinary circumstances;—surrounded only by the common light, and the now dull scenery of the common world.

T. B.

Walworth.

REVIEW OF THE MONTH.

MR. JUSTICE TALFOURD died on the 13th of March. Whilst charging the Grand Jury at Stafford he was seized with apoplexy and almost instantly expired. His tragedy, "Ion," is among the most classical and exquisitely finished of our country's dramatic compositions; and his "Memorials of Charles Lamb" have associated his name with the genial essayist, whom he resembled in tenderness of heart and every kindly quality. He was born at Reading, January 26, 1795. His dramatic taste was first inspired by reading the "Sacred Dramas" of Hannah More; and it is said that he never was able heartily to appreciate Shakspeare.

From the book of Daniel we gather that the last king of Babylon was called Belshazzar, and that he perished when the city was taken by the Medo-Persian army. But the name of Belshazzar has disappeared from the page of profane history altogether, and Berosus, the Chaldee historian, says that Nabonidus was the last king of Babylon, and that, after a disastrous engagement near Borsippa, he ended his days in Carmania. At Um-Queer (Ur of the Chaldees) some clay cylinders have lately been dug up, and from them Colonel Rawlinson has made the interesting discovery that the eldest son of Nabonidus was called Bel-shar-ezar, and that he was admitted by his father to a share of the government. Not only has the lost name of Belshazzar thus been recovered, but we see at once how to reconcile the statements of the sacred and the profane historians. Nothing is more likely than that one of the joint kings was defending the capital

in the absence of his father, and perished in the assault; whilst the other, marching to his relief, was defeated in battle and sent into exile.

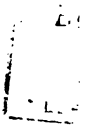
A few days ago, in the house of Dr. Neil Arnott, we saw in full working order his newly invented fire-place. It retains the common grate and the open fire; but by means of an ingenious, though simple, mechanism, it is fed with fuel from below. The consequence is, that none of it escapes in smoke, and, without stirring, there is secured for the entire day a fire brightly glowing with hardly any flame. The chimney never chokes; the atmosphere is not polluted; not a particle of combustible matter is lost; the fuel for heating purposes goes twice as far as on the present wasteful principle; and, if generally adopted, not only will our London fogs be clarified, but our householders will be rendered somewhat independent of dear freights and "striking" colliers.

Two invaluable additions have just been made to our stores of Church History. One is a "History of the Protestant Church in Hungary," anonymous, but prefaced by Merle d'Aubigné, and evidently the work of a zealous inquirer, who has resided on the spot and ransacked all sorts of records and archives. With plain and unpretending accuracy it sets forth many a striking scene in an eventful story, and furnishes information which can nowhere else be found regarding the Church of Huss and Jerome. The other is a "History of the French Protestant Refugees," by Professor Weiss of Paris. We have often longed to possess fuller details of that great dispersion which did so much to enrich Holland, Prussia, and England, at the expense of France, and which brought within our borders men of science like Savery and Papin, theologians and preachers like Allix, Abbadie, and Saurin, and the families of Roget, Romilly, Labouchere, Magendie, Ligonier, De Fleury, and Layard. With admirable industry and in a very lively

style, this *desideratum* has at last been supplied, and any one who has read Felice's "History of Protestantism in France," will find in this volume a most interesting and instructive sequel.

Our reading has lately lain a good deal among books of travel. With Oliphant's "Shores of the Black Sea" many are already acquainted, and those who want to know more of Russian arcana will find amusement in Turnerelli's "Kazan." In some places rather tiresome, it describes abundantly a curious old capital, of which little is known, and it makes us feel kindly towards the author. Curzon's "Armenia" is full of adventure, and gives a vivid description of a country which few have courage to penetrate. And St. John's "Purple Tints of Paris" show that it only needs new eyes and a happy pen, and the tritest theme again grows charming.

The labours of the Morrison Educational Society at Hong-Kong were suspended in 1849, but its effects are still seen. Of its first six pupils, four have turned out a credit to their country and to the Christianity which they profess. One of them is interpreter to the United States' Legation. Another is head-man or president of the Canton immigrants in California; and when many insults were offered to the Chinese as "coloured people," and an attempt was made to exclude them from the State, by means of a vigorous pamphlet, and by writing in the newspapers, A-chick turned the tide entirely in their favour. Another, who is preparing to be a missionary to his brethren, and who appears to be a young man of fervent piety, has twice gained the first prize for English composition in a class of a hundred students at Yale College. And a fourth, who is studying medicine at Edinburgh University, has gained prizes in the classes for Latin, Greek, and Botany.



ERNEST COVE, *April* 29, 1851.

From a Sketch by Captain Allen Gardiner found at Spaniard Harbour.

THE FUEGIAN MARTYRS.*

THERE are few spots in all the world more dreary than Tierra del Fuego. But in South America it is almost the only place from which Popery has not excluded Protestant missions, and therefore, three years ago, a few good men volunteered to go out and try to introduce the gospel among its neglected savages.

They were seven in number. Three of them were Cornish boatmen; one was a ship-carpenter; and the leader of the expedition, Captain Allen Gardiner, had been an officer in the British navy. The other two were landsmen.

They knew that the poor Indians who inhabit these stormy islands are inveterate thieves; and they had reason to believe that they would find them crafty and cruel: it was even said that they were cannibals. On every ground it was desirable that the missionaries should be independent of the natives; and therefore they took with them two large boats and provisions for six months.

The wisdom of this precaution soon appeared. On shore they were so harassed by the natives, that they had soon to take refuge in their boats; and even there they were not safe. They were attacked by armed canoes. Being missionaries, they could not fight; nor would armed men have had any chance against overwhelming numbers. They were fain to flee, and after many hardships, and the shipwreck of one of the boats, they found an asylum on a desolate coast, in a creek called Spaniard Harbour.

* Hope Deferred not Lost. By the Rev. G. P. Despard. A Memoir of Richard Williams. London, 1853.

Of the piety and benevolence of these devoted men it is hardly possible to speak in terms too exalted. Than theirs no motive could be purer, no heroism more holy. The sacrifice of comfort and of domestic endearment which they had made to what they deemed the call of God, entitles them to rank with the men of whom the world is not worthy; and far be it from us to dissipate the halo of virtual martyrdom which now invests their memory. But it is in the mistakes of the noblest and the best that its Heavenly Teacher finds great lessons for the world; and in the tragic end of this high-hearted enterprise, we see how unavailing are zeal and Christian chivalry except when guided by prudence and employing the needful precautions. In other words, we see that faith in God requires the use of means.

It was a mistake to commit themselves to such a tempestuous coast in boats so small. A little ship would have been at once a commodious residence and a retreat secure from the natives; and in the event of serious hostilities or exhausted supplies, it could have carried the adventurers to some friendly haven. But shallops which could not cross the sea, nor protect the voyagers from their mischievous neighbours, were a fatal economy. Still more fatal was the error which counted on supplies that did not exist, or that they had not the means of securing. They hoped to catch fish, but at first none could be found; and when at last a few made their appearance, they lost their net by leaving it overnight at the mouth of an ice-covered river. They hoped to kill game, and in birds and guanacoes they might have found an abundant commissariat; it was not till the ship had sailed for San Francisco, that they discovered an astounding oversight:—the guns had been landed, but the powder had been left on board.

Bitterly as they must have deplored these mistakes, they did not upbraid one another. They felt that they

were now entirely in the hand of God; and although bereft of almost every human comfort and doubtful if help would ever reach them,—already beginning to feel the pangs of hunger, and some of them prostrated by disease,—it may be questioned if English homes or Italian bowers contained happier inmates than the dreary cavern in Earnest Cove. Filled with that peace of God which passeth all understanding, they were able to comfort one another; and as long as they had strength to meet together, they kept up their united worship, and made these stormy coasts re-echo with their "hymns of lofty cheer." Above the entrance to their retreat they had painted, as an index to any who might afterwards arrive in search of them, a hand and a reference to "Psalm lxii. 5–8." And assuredly a more touching comment will never be furnished than this inscription by these prisoners of hope on the walls of their dreary cell: "My soul, wait thou only upon God; for my expectation is from him. In God is my salvation and my glory; the rock of my strength, and my refuge, is in God. Trust in him at all times."

However, it was not by a ship from England, but by angels from heaven, that their release was to be effected; and the exchange was to be no less blessed than from the wintry shores of Fuegia to the repose and the brightness of the Father's house.

From the journal of Captain Gardiner, afterwards recovered, it appears that they reached Spaniard Harbour March 29, 1851. Even then two of the party were ill and confined to bed; but with the energy and ready resource of an English sailor, the captain stirred up his companions to all sorts of expedients for obtaining supplies. But in the absence of apparatus for fishing and fowling they were sadly unsuccessful. A rancid fox, a shag half-devoured, a rock-cod thrown up by the tide, were among the greatest prizes which they secured; and on the 4th of July their

stores were reduced to "half a duck, about a pound of salt pork, the same of damaged tea, a pint of rice, two cakes of chocolate, four pints of pease, and *six mice*." For a time they contrived to eke out an existence on mussels, on a species of gelatinous sea-weed, and on a few stalks of wild celery; but at last they had not strength to creep along the coast in search of food. One by one they died. The first released was a boatman who had been brought up among the Methodists of Cornwall. It was near midnight, and in the very depth of an Antarctic mid-winter, when the sea-birds were roosting, and the sleepless billows were clanging on the desolate rocks, that John Badcock gave out the hymn,—

"Arise, my soul, arise,
Shake off thy guilty fears;"

and with the help of his comrade sang it all through, and then from his dreary Patmos his spirit passed away to the Paradise of God. The rest of the party lingered on for nearly two months more, two of them lodging in the cavern, and the remainder in a boat upon the shore, distant upwards of a mile. In the end of August the carpenter and another boatman died, and on the 3d of September Capt. Gardiner writes for the last time:—

"On Wednesday last Mr. Maidment prepared the grave, a wide one, in which both the remains of our fellow-labourers were laid side by side. Mr. Williams somewhat better, but the unexpected death of John Bryant had been a great shock to him, and he had been wandering in his mind during the previous night. Mr. Maidment returned perfectly exhausted. The day also was bad, snow, sleet and rain. He has never since recruited from that day's bodily and mental exertion. Wishing, if possible, to spare him the trouble of waiting upon me, and for the mutual comfort of all, I proposed, if practicable, to go to the river and take up my quarters in the boat. This was attempted on Saturday last. Feeling that without crutches I could not possibly effect it, Mr. Maidment most kindly cut me a pair (two forked sticks), but it was no slight exertion and fatigue in his weak state. We set out together, but I soon found that I had not *strength* to proceed, and was obliged to return. Mr. Maidment was so

exhausted yesterday that he did not rise from his bed until noon, and I have not seen him since; consequently I tasted nothing yesterday. I cannot leave the place where I am, and know not whether he is in the body or enjoying the presence of the gracious God whom he has served so faithfully. I am writing this at ten o'clock in the forenoon. Blessed be my heavenly Father for the many mercies I enjoy,—a comfortable bed, no pain nor even cravings of hunger, though excessively weak, scarcely able to turn in my bed, at least it is a very great exertion: but I am by His abounding grace kept in perfect peace, refreshed with a sense of my Saviour's love, and an assurance that all is wisely and mercifully appointed, and pray that I may receive the full blessing which it is doubtless designed to bestow. My care is all cast upon God, and I am only waiting His time and His good pleasure to dispose of me as He shall see fit. Whether I live or die, may it be in Him. I commend my body and soul into His care and keeping, and earnestly pray that He will mercifully take my dear wife and children under the shadow of His wings, comfort, guide, strengthen, and sanctify them wholly, that we may together, in a brighter and eternal world, praise and adore His goodness and grace in redeeming us with His precious blood."

It was not till the 22d of October that a ship searching for the exiles made the terrible discovery of the empty boat and the remains of Mr. Williams and his companion; and it was in January 1852 that H. M. S. Dido found the cavern in which Captain Gardiner and Mr. Maidment had expired. Mr. Williams, who had been a surgeon, was the only one of the party, besides Captain Gardiner, who appears to have kept a record of the passing events. We have been favoured with a perusal of the original copy of Mr. W.'s journal, of which ample extracts are given in his Memoir; and to show with what peace the Comforter can fill the soul in the lowest depths of outward misery, we may transcribe a few paragraphs from this affecting document. It must be remembered that the writer was too ill to leave his bed, and that bed was a narrow berth in a little boat, with the blankets often soaked by the condensed vapour raining from the iron roof a few inches above his head.

"Should anything prevent my ever writing to this, let all my beloved ones at home rest assured that I was happy beyond all expression the night I wrote these lines, and would not have changed situations with any man living. Let them also be assured, that my hopes were full and blooming with immortality: that heaven, and love, and Christ, which mean one and the same divine thing, were in my heart: that the hope of glory, the hope laid up for me in heaven, filled my whole heart with joy and gladness, and that to me to live is Christ, to die is gain. I am in a strait betwixt two, to abide in the body, or to depart and be with Christ, which is far better. Let them know that I loved them, and prayed *for every one of* them. God bless them all."

"*Thursday, June* 12.—Ah! I am happy day and night, hour by hour. Asleep or awake, I am happy beyond the poor compass of language to tell. My joys are with Him whose delights have always been with the sons of men: and my heart and spirit are in heaven with the blessed. I have felt how holy is that company; I have felt how pure are their affections, and I have washed me in the blood of the Lamb, and asked my *Lord* for the white garment, that I, too, may mingle with the blaze of day, and be amongst them one of the sons of light."

The last entry is a very long one. It was written during the slow hours of the mid-winter night; and it is not without traces of feverish wandering. It thus concludes:—

"When I left Burslem on the mission, it was with a secret confidence I should see the salvation of God. Oh, my soul hath beheld it! 'But the greatest trouble,' some would say, 'is not over yet. You have but a week's provision more, even at the rate you are now living at, and no certain expectation of a vessel's coming in that time!' Yes, this is so; but I have a certain and sure expectation of deliverance in that time.

"To-day is June 22; for I believe it is far advanced in the morning. We shall see. He that believeth shall never be confounded.

"Here I rest my hope.

"The Lord's will be done."

Believing that it may interest our readers, we have given a fac-simile of the closing words. The double line was probably drawn across the page as a sort of "Finis" on some subsequent occasion, when he found that he had *strength* to add no more.

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To day is June 22
it is for advanced m
We shall see - He that
never be confounded -
Here I rest my hope
The

ASTOR,
TILDEN FO

ON THE POPULATIONS OF THE RUSSIAN EMPIRE.

No. II.

THE PARTS AROUND THE BLACK SEA.

We have taken cognizance of certain populations on the Baltic Sea, which, although they formed part of the Russian empire, were not Russian.. What were they ? Lithuanians and Fins, Fins and Lithuanians. Let us now turn southwards, towards another sea-coast, towards another seat of the present naval operations, and try to ascertain the character of the populations there found. They belong to Russia. The most ignorant Turk in the most unenlightened part of Turkey knows this. But are they Russian ? They are Russian, just as the populations of the Baltic were Russian, *i. e.* only partially so. But they are neither Fins nor Lithuanians. We can scarcely expect that they should be. We have moved a thousand miles southwards, and are in the latitude of Northern Italy; of Venice and Turin; of the south of France. We are in the *Italy* of Russia, for this is what they call the Crimea. Now the Lithuanians and the more southern Fins were in the latitude of the Shetland Isles, or thereabouts,—a latitude of frost and snow, of damp and cold, of short summers and long winters; and the most northern of the Fins actually lay within the Arctic Circle itself. But the regions now under consideration lie a thousand miles south of St. Petersburg.

The *intermediate* parts are Russian,—the intermediate parts, but not the two extremities.

The intermediate parts are as truly Russian as Yorkshire and Lincolnshire are English; or the Isle of France, French.

And it is in these intermediate parts where the language, and the creed, and the Moscovite nationality of the Russian, are found in their most unmodified forms.

The Russian language is spoken by more than 50,000,000 human beings, and it is over these central parts of the empire that these fifty millions are distributed; central parts that we may, for the sake of illustration, call the "Midland Counties of Moscovy," remembering only that the smallest of them is as large as Wales, and the largest larger than all Great Britain. The better name, however, is "Government." Now, in the Government of St. Petersburg the population, *other than Russian*, is that of the first of the following tables; whereas, in the Government of Vladomir, it is that of the second:—

(1.)

Vods	5,148	Lithuanians	2,000
Esthonians	7,736	Poles	19,149
Auramoiset	29,344	Armenians	170
Savakot	42,079	Germans	50,800
Izhore	17,800	Swedes	6,156
Karelians	3,660	Gipsies	254
		Total	185,196

(2.)

Germans 100	Gipsies 130	Total 230

Such are the two extremes between the Russian parts of Russia in respect to the heterogeneous or homogeneous character of the population. In such Governments as Livonia, Esthonia, Archangel, &c., the difference is greater. These, however, are Russian only as Wales is English. St. Petersburg, on the contrary, is truly Russian; but how much more Russian is Vladomir—Voronetz, Orlov, Kaluga, Koursk, Moscow, Smolensko, Tula, and Kharkov, being in the same category. They are all Russian, with the exception of a few hundred Germans and Gipsies. If we look at the map, *we find that* all these Governments lie together, forming the

very nucleus of the empire. Move from this nucleus, and, whatever direction we take, we shall get, first, to a mixed, afterwards to a foreign, population,—foreign at least to Russia. Thus,—

a. Northwards, we get amongst the Fins, whom we first find in Jaroslav, Kostroma, Tver, and Novogorod.

b. Eastwards, we get amongst the Fins of Tambov (few in number), Penza, and Kazan, &c.; also amongst the Tartars of Kazan and Orenburg.

c. Westward, we get amongst the Poles; and

d. Southward, amongst the Tartars. Now the Tartars on the Euxine and in the parts under present notice take the same place, and command the same attention, that the Fins and Lithuanians took and commanded on the Baltic. The Crimea, in fact, the most important of the southern parts of Russia, is as little Russian as is Esthonia. But it is as much Tartar as Esthonia is Fin.

The Tartars.—In respect to its ethnology, the Crimea is Tartar at the present moment; and there are men now living who remember when it was Tartar in respect to its political relations as well. We first find it as part of the Ottoman empire; then its allegiance became nominal; then null. Finally, it was annexed to Russia. The two last steps took place as late as the last quarter of the last century, for it was in 1778 that peace was concluded between Turkey and Russia, and the independence of the Khan of the Crimea of the Ottoman empire recognised.

Upon this, no fewer than 30,000 Greeks and Armenians emigrated to the country of the Don Cossacks, where they now occupy several villages between the Don and the Benda.

In 1783 the second of the two changes took place, and the Khanate of the Crimea, from being independent of Turkey, became subject to Russia. On this event, such

Tartars as chose were allowed to emigrate, and Anatolia and Rumelia were the countries that vast numbers of them sought. Ten years lasted these emigrations; and in 1784 alone no less than 80,000 Tartars left their country.

It is not easy to take the exact value of these *evictions*, inasmuch as the calculations of the numbers of the Tartars before the peace of 1778 vary; Georgi making the number of both sexes between 300,000 and 400,000, whereas Pallas raises it to 500,000.

Then the census of 1796 was inaccurate, and had to be taken over again. The highest number, however, that it gave was 90,000. In 1800 it had increased to 120,000. At present it is (as seen from the figures) more than twice as much. These give

Tartars	275,822	Talmudic Jews	4,110
Germans	22,324	Armenians	3,960
Gipsies	7,726	Bulgarians	1,234
Greeks	5,426	Mordvins	340
Karaite Jews	4,198		325,140

The religion of these Tartars is the Mahometan; their speech a form of Turkish. Their whole nationality is Turkish also. In the hills they live as shepherds and herdsmen rather than as tillers of the ground. In the plains they exercise a moderate, but not discreditable amount of agricultural industry, in a country where the soil is grateful and the climate mild, where tobacco thrives, and where the grape ripens into a vinous flavour. The representatives of some of these great families still retain their own lands,—lands held under feudal or quasi-feudal conditions; but the family of the Khan himself removed to Asia Minor on the conquest of his Khanate. There are a few unimportant points of difference between the Tartars of *the hill-country* and the Tartars of the plains,—the herds-

men and the cultivators,—the Highlanders and the Lowlanders. The Nogays belong to the same stock. They are chiefly the descendants of a colony planted in the western part of the Government of Taurida from the Steppes between the Don and the Caspian. There their brethren lead the life of the true nomade, with migratory flocks and herds, under black tents of felt. So that the Nogays represent the wandering portion of the Tartar stock, whereas the others are as truly stationary and as steadily fixed to their homes and farms as the Russian himself, the German, or the Englishman. And now let the hasty speculator take a warning against exaggerating the permanence of hereditary habits. So far from these descendants of the children of the desert being impracticable, migratory, and unsteady in their industry; so far from their preferring the tent to the village, and showing a repugnance to farming-work, the very converse is the fact. "The Nogais are, alas! the least numerous of the Tartars of the Crimea. They combine the taste for a nomadic life with the cultivation of the soil. They are the best agriculturalists in the Crimea, and they now begin to settle in villages and to deal in cattle. It is a pity that this laborious and agricultural population is too small for the cultivation of the Steppes."—*Mémoires de l'Académie de St. Petersburg.* Serie vi. tom. i. p. 36.

The farther we go eastward the more the Tartar population increases. In the Governments of Caucasus, Stavropol, Astrakhan, Saratov, Simborsk, and Orenburg, they are, more or less, migratory. In Kazan, as in the Crimea, they constitute the remains of an independent empire—an independent empire with a civilisation on the level of that of the present Turks. In Kazan they amount to more than 300,000.

The Kalmucs.—Tartar is an inconvenient word; but we must take it as we find it. It means, when *laxly* applied, any of the migratory tribes of Central Asia, Kirghis, Mongolians,

Mantshus, occasionally even Tibetans. In the more limited sense it means such of these migratory Asiatic populations as are allied to the Tartars of Independent Tartary, and the Turks of Turkey,—speaking the Turkish tongue. A Turk in Russia is a Tartar, and every Tartar is a Turk. But if we use the word laxly, we apply it to certain populations not so characterised. A *Kalmuc* is a Tartar in this looser sense of the term; but a Kalmuc is not a Tartar of the Turk stock. A Kalmuc is a Mongolian, with all the Mongolian's exaggerated physiognomy, broad cheek-bones, flattened nose, tawny skin, and glabrous beardless face. And his language is Mongolian, wholly unintelligible to any Tartar of the Turk branch.

Now on the western side of the Caspian, chiefly in the Government of Astrakhan, there is a large Mongolian district; the occupants having colonised it from the western portion of the proper Mongol country—far eastwards, and in contact with the great wall of China.

The Fin family fell into several minor divisions, Siranians, Permians, &c. The Tartar (or Turk) family does the same; so that eastward and westward we meet with the Kirghis, the Meshtsheriaks, the Bashkirs, and others of less importance.

The Tartars, then, in the south-east are what the Fins were in the north-west.

Westward of the Crimea, besides a mixture of Jews, Germans, Gipsies, Greeks, Armenians, a few Servian settlements, and the four Swedish villages above mentioned (see p. 259), we find out-lying populations from Bulgaria and the Danubian Principalities.

The Bulgarians, in speech at least, are all but Russians. *The Rumanyos.*—Not so the members of the Rumanyo family, occupants of Wallachia, Moldavia, and parts of Transylvania; also of portions of the Russian Governments of Po-

dolia, Kherson, Ekaterinoslav, and the district of Bessarabia. Rumanyos, or Romans, a strange name for these parts, is no stranger than that of Roumelia for European, and Roum for Asiatic, Turkey. It is the same word (though for a different reason) with the word Rommani, the term by which the gipsies, all over the world, designate themselves. This is merely because the country of the Rumanyos was their first European halting-place. In respect to Roumelia, Roum, and the same Rumanyo population, the reason is different. They belonged to the Danubian, the Thracian, and the Asiatic provinces of the *Roman* Empire. With the Rumanyos the claim to so honourable a designation is strengthened by the fact of their language being a descendant of the Latin; as truly as are the Italian, Spanish, Portuguese, and French. When Dacia was reduced by the Romans under Trajan, a Roman nationality, along with the Latin language, was introduced amongst a population originally (it is believed) akin to the Rusniak of the parts northward. If so, the Rumanyos are no instances of a pure stock, and, although the blood they boast is good, it is far from unmixed. The Rumanyo nationality is not indistinctly marked. Their language, separating them from the Slavonians, connects them with the most civilised countries of Western Europe; though it is perfectly unintelligible beyond the boundaries of the ancient Dacia. Then it is strangely disguised in the writing and printing; inasmuch as the Rumanyo alphabet is Russian. This is as if Greek were written in English characters. The creed is that of the Greek Church. Numbers:—

In the Government of Podolia	7,429
,, ,, Ekaterinoslav	9,858
,, ,, Kherson.....	75,000
In the District of Bessarabia.....	406,182
	498,469

Say, that, in round numbers there are half a million

Rumanyos (*i. e.* Wallachians and Moldavians) subject to Russia.

The Rusniaks.—In the eyes of ordinary men, and in common conversation, the proper title of Nicholas is the Czar, or Tsar, of Russia; or we may say the Czar, or Tsar, of Muscovy—Czar meaning Cæsar, and the title being taken from that of the Byzantine Emperors of Constantinople. He is also the Emperor, and the Autocrat. But in the higher and more refined regions of diplomacy this style is incorrect, and we have lately seen that it has given offence. The Prussian papers called him so, and excited indignation accordingly. His truer title was "Emperor of *all* the Russias." This ushers in a distinction. There are more Russias than one,—in diplomacy and in ethnology also. In diplomacy their number is of no great importance: in ethnology it is worth attending. There are three Russias, each with a distinctive adjective attached to it. Sometimes this indicates size; sometimes colour; as we shall see. First, there is *Great* Russia, or Moscovy, of which Moscow is the capital, to which, too, Novogorod and Petersburg belong. This comprises the parts to the east of Smolensko. Secondly, comes *Little* Russia, called also *Red* Russia. Thirdly, *White* Russia, or the Government of Smolensk, and the parts along the Lithuanian frontier.

The natives of Little Russia are called Malorussians, Ruthenians, or Rusniaks; and Rusniaks is what they will be called here. They extend beyond the boundaries of the Russian Empire westwards; and Austria includes numerous Rusniaks amongst the multifarious populations under its rule. It is in Gallicia where they occur; and, more numerously still, in the Buchovinia. Probably, they are the original occupants of those parts from which they spread as far east as the Black Sea, and as far west as the frontier of Silesia. This is the inference from the dialect, which has

gradually retreated before the Polish. As the latter has stretched southwards and eastwards, the Rusniak has receded. Still it is spoken freely in both the localities alluded to. And it is spoken in the upper part of Bessarabia, on the head waters of the Pruth and on the Bukhovinian frontier. It is spoken, too, in parts of Podolia, Kherson, and Kiev. It is the dialect of the Ukraine, and the banks of the Dnieper; and when the famous Kosaks of the Dnieper flourished in their formidable power, the Rusniak was their tongue. The first movement from south to north, and from west to east,—the first step in the conquest of Russia—was Rusniak. The most terrible invaders of the Byzantine empire were Rusniaks rather than Moscovites, and Kiev was (and *is*) a Rusniak rather than a Moscovite city. Just as London, in the eyes of a patriotic Scotchman, is the capital of England only, Moscow and St. Petersburg in the eyes of the Rusniak are the capitals of Great Russia only. His Edinburgh is Kiev. It is in the Rusniak dialect that popular songs are most abundant and beautiful; and it is to Rusniak airs that they are sung.

The proportion borne by the Rusniaks to the Russians at large, is as follows; the statistics of Schaffarik being adopted, and the language being taken as the test:—

a. Great Russians	35,314,000
b. White Russians.....	2,726,000
c. Rusniaks.....	13,144,000
	51,184,000

The Rusniaks have found favour with travellers, and have got the credit of being finer-looking, stronglier-built, and better-tempered than their fellow-subjects of the East and North.

The Kosaks, many of whom are of Rusniak blood, along with the tribes of the Caucasus, will form the subject of next Number. R. G. L.

LIFE, IN ITS LOWER FORMS.

No. III.

Polypifera.

If any of our wonder-loving readers will put a small phial into his pocket, and stroll through some hedge-rowed lane or quiet field at this sweet season of the year, he may find food for meditation in the results of his walk. Let him direct his steps to the side of the first ditch or pool in which the water is not fetid, where the surface is already mantled over with the verdant duck-weed, and where many aquatic plants, springing from the bottom, wave their leaves in the limpid element. Stooping down on the brink, let him lift with his fingers a little of the coating of duck-weed, disturbing the water as slightly as possible, and then, peeping through the opening thus made, examine slowly and carefully the bottom thus revealed. On the mud he will probably see a good many round knobs of jelly, from the size of a turnip-seed to that of a pea, of a transparent green hue, and others of the same kind adhering to the stalks and under surfaces of the leaves of the aquatic plants:—let him select a few of these, place them, with some clear water and a fragment of some plant, in his phial, and hasten home. He will have obtained a creature which, about a century ago, electrified the scientific world, and opened up a new and most marvellous chapter in the history of Life. It is the Fresh-water Polype (*Hydra viridis*).

The invention of the microscope had given an immense impetus to natural science; and a galaxy of illustrious men had by its means been announcing wondrous facts, the records of which fill the pages of the Philosophical Trans-

actions of our own Royal Society, as well as many works of great merit specially devoted to microscopy. But yet, when, in 1744, Abraham Trembley of Geneva declared what he had seen of this little fresh-water animal, this living ball of green jelly, it was regarded as a thing incredible, and even impossible. The facts "were so contrary to all former experience, and so repugnant to every established notion of animal life, that the scientific world were amazed; and while the more cautious among naturalists set themselves to verify what it was difficult to believe, there were many who looked upon the alleged facts as impossible fancies. The discoveries of Trembley were, however, speedily confirmed; and we are now so familiar with the outlines of the history of the fresh-water polype, and its marvellous reproductive powers, that we can scarcely appreciate the vividness of the sensation felt when it was all novel and strange: when the leading men of our learned societies were daily experimenting on these poor worms, and transmitting them to one another from distant countries, by careful posts, and as most precious gifts; and when even ambassadors interested themselves in sending early intelligence of the engrossing theme to their respective courts."*

Let us try to see what Trembley saw. Put the phial in a window, and allow it to remain untouched awhile. The balls of jelly have all attached themselves, some to the glass sides, some to the plant, but they are balls no longer. Each is a thread of some half-inch in length, and about as thick as small twine, adhering by one extremity; while from the other radiate, like a star, six slender threads, which are waved irregularly through the water, thrown into spiral coils or various contortions, elongated, contracted, elongated again, slowly or suddenly, and in different degrees. Two or three minute water-insects are swimming giddily about;

* Johnston, Brit. Zooph. 126.

one of them, as he shoots unconsciously by, just touches one of these slender threads. In an instant the playful course is arrested; the little thing strives to pursue his way, drags the flexible cord that holds him hither and thither; redoubles his efforts, pulls away and stretches it till we think it must break and free him. No! like a skilful angler, the jelly is but wearying his victim: suddenly the thread is thrown into corkscrew coils, and the helpless insect is dragged in; another thread is brought to bear upon it, and another. Poor thing! "*actum de eo est*," it is all up with him! He is dragged helplessly to the base of the radiating threads, and there, in the midst of their circle, an aperture is gaping, which stretches wider and wider, while the prey is slowly sucked in, until it is quite engulphed within the gelatinous body.

But, for some time before this, the prey had become quite motionless; its struggles, though violent at first, had soon entirely ceased, and it was evident that a fatal effect had been produced by the mere contact of those slender threads.

What is the nature of this subtle venom that resides in a creature apparently so low in the scale of being, so simple in structure, and almost homogeneous in substance? Worms, and the larvæ of insects, that may be wounded, and even chopped into pieces, and yet survive for hours, die suddenly from a touch of these gelatinous threads! "I have sometimes," says Baker, "forced a worm from a polype the instant it has been seized, at the expense of breaking off the polype's arms, and have always observed it to die very soon afterwards, without one single instance of recovery."* On the other hand, the tiny water-fleas, and other minute crustacea, frequently escape with impunity even from the very mouth

* History of the Polype, 33.

of the polype; for they are enclosed in a horny shell, which evidently protects their vital parts from the morbific touch.

The microscope throws light on the question, and reveals a most elaborate system of offensive weapons with which these soft and sluggish creatures are provided. According to Corda, each tentacle forms a slender membranaceous tube, filled with an albuminous substance nearly fluid, mingled with some oily particles. This substance, at certain definite points, swells out into tubercles or dense warts, which run round the tentacle in a spiral line. Each wart is furnished with several spine-bearing vesicles, which are organs of touch, and with an organ of highly curious structure, which is the weapon of offence.

The organ of touch consists of a fine sac, enclosing another with thicker walls, within which there is a small cavity. From the upper extremity, where the inner and the outer sacs are in contact, there projects a long cilium, or fine pointed bristle, which is not retractile, and appears to be immoveable.

The weapon of offence is placed in the midst of these spines, in the centre of each wart. It consists of an oval transparent sac, embedded in the substance of the wart, with its perforated extremity exactly at the surface. At the bottom of the interior of the sac there is a body, in shape resembling a saucer, in the centre of which stands a small oval, solid body, bearing on its summit a calcareous dart, pointed at its extremity, and bifid, or sagittate, at its base. This dart can be projected at the will of the animal, and again withdrawn into the sac. When the prehensile instinct is exerted, the darts are thrust out with force, and, entering the tissues of the prey, retain it: while at the same time, in all probability, a subtle but potent poison is injected, the effects of which we have already alluded to.

But this is a modern discovery. The circumstance in

the economy of these animals, which appeared so anomalous, was the mode in which they were both naturally and artificially multiplied. They were manifestly animals, yet it was found that they could be propagated by slips or cuttings, like plants! In the warm weather of summer each polype is observed to shoot forth, from various parts of its body, little warts, or knobs, which increase rapidly, until in a few days they assume the form of the parent animal, each one being furnished with a circle of tentacles, though still attached at its lower end. The young one, which up to this period had received its nutriment from the parent's stomach, from which a channel had communicated with its own, now catches prey with its own tentacles, the duct closes, the connexion of the base with the mother becomes more slender, and at length the little animal falls off, and commences independent life. Such is the natural mode of increase—generation by *gemmation*.

In autumn, the Hydra propagates by means of eggs, which are deposited around the parent; the basal portion of her body being spread over them, and becoming a horny protecting skin. She immediately dies, and the eggs are hatched in the ensuing spring.*

But these strange animals may be artificially increased at pleasure, and that by means which, to higher animals, would inevitably destroy, instead of multiplying life. If the head of a polype, with all its tentacles, be cut off from the trunk with scissors, it will presently develope a new trunk and base, while the headless trunk begins to shoot out new tentacles; and thus, in a little time, two perfect animals are formed. If one of these be cut into three, four, or half-a-dozen pieces, each piece supplies the wanting parts, and so many animals are made, all as perfect and active, and endowed with the same functions, as the first. Nor does it

* Laurent, L'Institut, No. 465.

signify in what direction the mutilation is made; a longitudinal, a diagonal, or a transverse division, is equally successful; nay, even a small portion of the skin soon grows into a polype.

It was from this power of perpetual reproduction, that this singular animal received the name of *Hydra*, by which it is known among naturalists; as if it realised the ancient monster of fabulous story, whose heads sprouted anew as fast as they were cut off by Hercules.

Most curious monstrosities were produced by the experiments of philosophers on these animals, especially by partial separations. If a polype be slit from the summit to the middle, one will be formed having two heads, each of which will capture and swallow food. If these again be slit half-a-dozen times, as many heads will be formed surmounting the same body. If now all these be cut off, as many new ones will spring up in their place, while each of the severed heads becomes a new polype, capable of being, in its turn, varied and multiplied *ad infinitum*:—so that in every respect our little reality exceeds its fabulous namesake.

The polypes may be grafted together. If cut-off pieces be placed in contact, and pushed together with a gentle force, they will unite and form a single one. The head of one may be thus planted on the trunk of another.

Another method of uniting them, perhaps still more wonderful, is by introducing one within the other; the operator forced the body of one into the mouth of the other, pushing it down so that the heads were brought together. After forcibly keeping it for some time in this state, the two individuals at length united, and a polype was formed, distinguishable only by having twice the usual number of tentacles.

There is one species which can actually be turned inside out like a glove, and yet perform all the functions of life a

before, though that which was the coat of the stomach is now the skin of the body, and *vice versâ*. If it should chance that a polype so turned had young in the act of budding, these are, of course, now within the stomach. If they have arrived at a certain degree of maturity, they extend themselves towards the mouth of the parent, that they may thus escape when separated. But those which are less advanced turn themselves spontaneously inside out, and thus place themselves again on the exterior of the parent.

A multitude of other variations, combinations, and monstrosities, have been, as it were, created by the ingenuity of philosophers; but these are sufficient to give a notion of the extraordinary nature of these animals, and to account for the wonder with which they were regarded.

The Hydra was, until lately, considered as an animal of very simple structure, being composed of mere granules of jelly, set in a glairy, enveloping fluid. But the farther we push our researches, the more are we disposed to hesitate in pronouncing on the comparative simplicity or complexity of any organism. We have already seen the elaborate array of weapons in the tentacles. M. Gervais has shown that the component granules of the body are of diverse forms, and, in all probability, sustain different relations to the general economy. The whole body consists of a sac, with thin dilatable walls, enclosing a capacious cavity, which forms the stomach: the granules which border this cavity are conical papillæ projecting into the stomach, and are supposed to have a digestive function; the exterior series are lengthened, and constitute an integument, while some of the intermediate ones are arranged in bands, which are, with little doubt, presumed to be muscular. The muscular bands in the tentacles are still more distinct, running in four series, which pass diagonally to and fro from side to side, forming lozenge-shaped spaces by mutual intersection. P. H. G.

SNAILS: THEIR LONG LIVES AND THEIR REVIVALS.

THERE are many facts connected with the physiology and habits of some of our most common animals that naturalists have not yet been able to account for — many queries they have not yet been able to answer. How long, for instance, does a snail live? Mr. Gaskoin informs us that about two months ago there died in his collection of live snails a patriarchal individual of "the milk-white Helix," the *Helix lactea* of authors, whose history in a state of captivity, to his knowledge, extended over a period of ten years. At the commencement of that time the snail was adult, but its exact age at the beginning of its captivity was unknown to him. Another question might be asked, — How long can a snail remain in a state of torpidity, and yet not lose its vitality? The animals belonging to the genus *Helix* — many species of which may be seen under our hedge-rows and on our way-sides — at the approach of winter retire into their shells, and go into a state of hybernation. When the temperature has become low, the animal takes up its position in a crevice of a rock, under the moss at the root of a tree, or under a stone, and begins to form a thin covering for its mouth, with which it attaches itself to the surface of the object nearest it. In this state it remains during the winter, without food and without showing any symptoms of life, and if removed into a dry place, and excluded from the external air, it may remain so for years. In hot climates a similar state of torpidity takes place during the continuance of the very dry season. Adanson, in his "Natural History of Senegal," mentions the fact of a large species of snail—

the *Bulimus Kambeul* of authors, and which is used by the natives of that country as an article of food — burying itself in moss at the foot of trees, or amongst grass in the brushwood at the commencement of the dry season, and remaining torpid for eight months together. Respiration in these animals is very slow — the act of inspiration and expiration being performed only about four times in a minute; and some very curious cases are on record where this action has been suspended far beyond any ordinary time of hybernation, "life, as it were, keeping watch and holding at bay every destructive agent, but without giving any outward sign of her presence and constant wakefulness." In the excellent "Introduction to Conchology," by Dr. Johnston of Berwick, several extraordinary instances of this tenacity of life in snails are detailed. For an account of these we must refer to this admirable work itself, and pass on to give the history of one of the most authentic instances of long-continued torpidity which have ever been recorded. It occurred in the British Museum a few years ago. In March 1846, a series of shells was presented to our national collection by Charles Lamb, Esq., from Egypt, Greece, &c. Amongst them were several specimens of an Egyptian species, the "Snail of the Desert," the *Helix desertorum* of authors, and which is found in great abundance living in the dry and arid deserts of Egypt and Syria. These shells had been packed up and carried through a considerable part of Europe before they found their way into the gallery of the Museum, where they were deposited and fixed with gum upon their tablets on the 25th of March. Immured in their prison they remained for four years, *without* giving any sign of vitality. At the end of that

time, however, in the latter part of March 1850, it was observed that on the mouth of one specimen a fresh, thin, glassy covering (called by conchologists the *epiphragm*) had very recently been formed. The specimen was immediately detached, and immersed in tepid water. After the lapse of a period not exceeding ten minutes, the animal began to move, put forth its horns, and cautiously emerged from its shell. In a few minutes more it was walking along the surface of the basin in which it was placed. The last time it had exercised its locomotive faculty was in the sandy plains of Egypt, not far from the banks of the Nile. Now it awoke to find itself crawling on the surface of a delf basin in the heart of London! Great care was taken of this "*helix rediviva.*" It was placed in a tall glass-jar, eighteen inches high, with considerable space to move about in, and supplied with food, which it ate readily, though in small quantities. Cabbage-leaves formed its favourite repast, and were preferred to lettuce or any other vegetable. In this tranquil state of existence it remained till March 1851, when it resumed its torpid condition, shut itself up in its shell, and took an eight months' nap, awaking once more on the 9th of November to eat cabbage-leaf and perambulate the circumference of its glassy prison. Though quite lively, it again became torpid on the 15th, as if conscious the season of the year was not propitious, and never afterwards emerged from its shell. It was found dead, and perfectly dried up, in March 1852. Such was the end of the Egyptian snail, and it was with some feeling of regret that its death was recorded. The accompanying figure of this interesting animal—the picture of it as it looked in life—is from the first volume of an excellent little work by Mr. Woodward, of the British Museum, "A Manual of Mollusca, or Treatise on Recent and Fossil Shells,"—a work which we may recommend to our readers as containing a brief but

most comprehensive analysis of the numerous genera of which the mollusca are composed. The second volume is now in the press.

A short history of the patriarch belonging to Mr. Gaskoin, mentioned at the commencement of this notice, has been given by that gentleman in the "Proceedings of the Zoological Society." In this case the most extraordinary part of its history is, that after it was resuscitated and had lived, isolated and alone, for a period of six months, a family of about thirty little ones made their appearance, creeping about the large glass-bell in which the mother had been confined. Many of these little ones lived; and some of them at the end of twelve months after they had first made their appearance, had acquired nearly the size of their parent. During the time in which these snails remained torpid, no accurate information as to the condition of the animals themselves was ascertained. Did the circulation continue to go on, or was it stopped? Was respiration completely suspended, or was the contact of air essential to vitality? These questions we cannot answer in the present state of our information, but must conclude, with Dr. Johnston, that though it is difficult to believe, that all the functions as well as the signs of life ceased entirely, "it is yet scarcely less so to suppose that, for the space of four or five years or more, these functions could exist without some supply of food to keep up the waste and secretions, however trivial, which necessarily flow from a circulation, or without some air to purify the circulating fluid."

The fact, however, that snails can remain in this state of torpidity, or apparent complete suspension of life, for a number of years without losing their vitality, is now beyond a doubt. W. B.

THE WOODEN WALLS OF OLD ENGLAND.

WITHOUT venturing too far into the border-land between history and fable, we may presume that at the time of Cæsar's invasion our forefathers possessed ships of more consequence than coracles. It could scarcely have been in boats of wicker covered with skins that they paid their visits to the Gauls, whom they constantly succoured by land and by sea. Besides which it is reasonable to suppose that a people, by no means barbarians, and having a considerable trade with the Phœnicians, would see the advantage of possessing a fleet for themselves.

Alfred built galleys to resist the Danes twice as large every way as ordinary vessels, carrying sixty rowers each, and of so novel a form as to prove that the king would have excelled as a shipbuilder. When Richard Cœur de Lion sailed from Sicily in 1191, for the settlement of the "Eastern question" of those days, he had a fleet of thirteen "monster" ships, 150 ships of war, and fifty-three galleys, besides smaller vessels and tenders; and when he left Cyprus, he had increased his fleet to 254 ships and sixty galleys. Whether Richard did as much for ship-*building* as Alfred, we cannot tell; but we must allow to the author of the "Laws of Oleron" the greatest credit for maxims which have served as a foundation for most marine regulations since. John was, perhaps, not a naval architect, but he appears to have been the first prince who definitely enacted that any foreign ships refusing to strike to the royal flag were to be considered enemies—a law indubitably establishing his naval supremacy. When we find that the 738 sail, with which Edward III. blockaded Calais in 1347, contained only 14,956

mariners, we must not too hastily conclude that his vessels were all small, without reflecting that, in his time, the crews merely attended to seamanship, while the troops on board bestowed their care upon the foe; for previously, in 1330, in one of 200 great ships taken from the French in an action off the coast of Flanders, there are said to have been 400 dead bodies, which, if true, gives us good ground to believe that there were then ships of considerable burden.

The first vessel of the royal navy, properly so called, was the *Great Harry*, built by Henry VII., who first saw, and attempted to remedy, the inconvenience of hiring ships for the public service. Succeeding monarchs followed out his ideas; and his son Henry VIII. constructed the *Henri Grace à Dieu*, a two-decker of more than a thousand tons; but the lower guns appear to have been dangerously near the surface of the sea, so that we are the less surprised to hear that the *Mary Rose*, built about the same time, was lost from the same defect. In 1578, however, there were no more than twenty-four ships in the navy, of which the largest was the *Triumph* of 1000 tons, and the smallest the *George*, which was under sixty tons; and in 1588 the nucleus of the fleet with which Lord Howard of Effingham attacked the Invincible Armada consisted but of seventeen royal ships. At the death of Queen Elizabeth, the navy had increased to forty-two sail, and its reputation far exceeded its force. Under James I. the size of ships-of-war became more considerable; for, in the year 1610, "the king built a most goodly ship for war, the keel whereof was 114 feet long, and the cross-beam was forty-four feet in length; she will carry sixty-four pieces of great ordnance, and is of the burden of 1400 tons. This royal ship is double built, and is most sumptuously adorned, within and without, with all manner of curious carving, painting, and rich gilding, and this glorious ship the king gave to his son Henry,

Prince of Wales, ... who named it after his own dignity, and called it *The Prince.* The great workmaster in building this ship was Mr. Phineas Pett, gentleman, sometime master of arts of Emanuel College, Cambridge." A still larger ship was built for Charles I. by Mr. Peter Pett, the *Sovereign of the Seas,* of 1637 tons, and 100 guns. The length of her keel was 128 feet, but so long a "beak" had she, and so overhanging was her stern, that her length over all was no less than 232 feet. Her breadth was forty-eight feet, and her height to the top of her lantern seventy-six. "She bore five lanthorns, the biggest of which would hold ten persons, had three flush decks, a forecastle, half-deck, quarter-deck, and roundhouse."

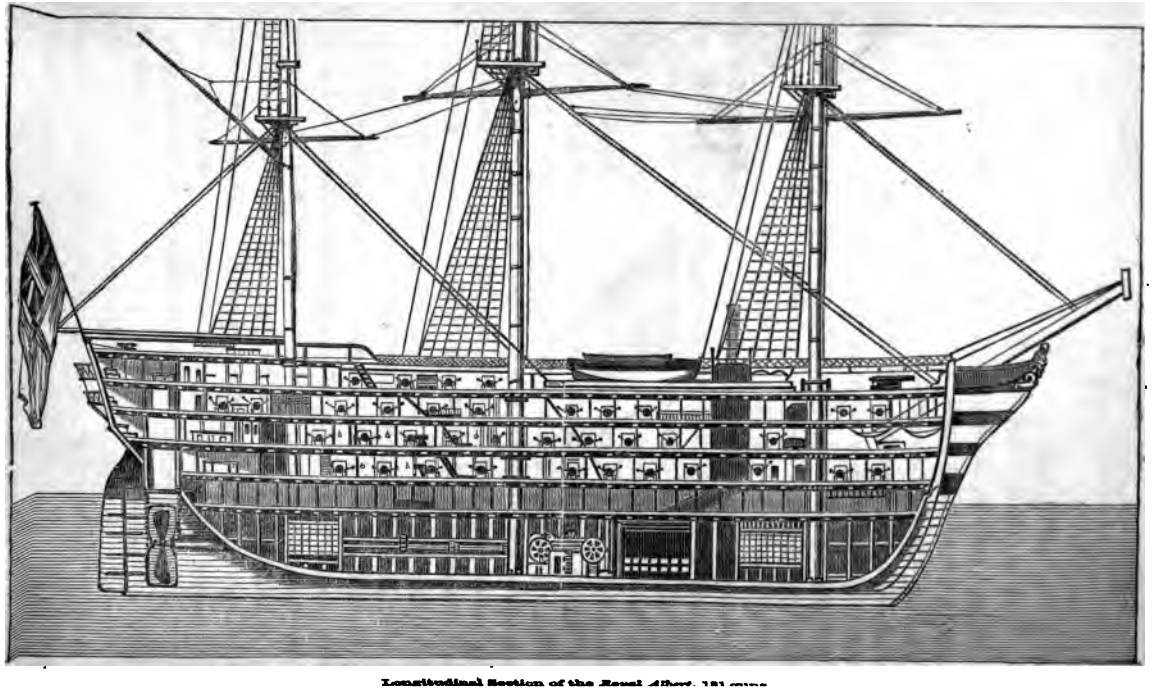
In the succeeding reign, Sir Anthony Deane astonished his contemporaries, and increased his renown, by estimating the displacement of ships before launching, and from that time a new element was introduced into naval architecture —that of mechanical science; and in spite of the hindrances interposed by prejudice and ignorance, it has continued to make increasing progress, and has now obtained such an ascendancy, that we find it almost necessary to remind ourselves occasionally that the value of theory consists in its intimate connexion with practice.

Science, however, was applied to the purposes of the shipbuilder in foreign countries long before Englishmen thought proper to avail themselves of her aid. Paul la Hoste published, in 1696, a treatise, entitled "Théorie de la Construction des Vaisseaux," and he was followed by Bernouilli, Bouguer, Euler, the Swedish Chapman, and many others whose writings and investigations were of so much service to the navies of our neighbours, that, until Atwood, Beaufoy, and Inman, entered the lists, we had no better manner of improving our ships than to copy as closely as we could those which we took from the French and Spaniards. Thus,

commencing with the *Princessa* in 1740,—the ***Invincible***, the *Commerce de Marseilles*, and many others, formed models for the construction of several vessels which were, nevertheless, sometimes inferior to their originals. One of the principal advantages derived from this system was an increase in the size of our ships, which gave better accommodation and fighting quarters, more stability and greater speed, while it afforded scope for the builder to make improvements in his design, from which he would otherwise have been debarred. Indeed, until Sir Wm. Symonds became Surveyor of the Navy, the tonnage of ships was restricted according to the number of their guns; and the relaxation of these pernicious and shortsighted regulations enabled him and future designers to follow out their ideas with more freedom than their predecessors, and thus to make great advances in the construction of ships-of-war. The great desideratum of a line-of-battle ship without ballast has been accomplished,—the length has been considerably increased; and White has introduced his long bows with as much success as Sir Robert Seppings did his circular sterns. These last, and the still later elliptical sterns, however, demand further notice from us, as involving important alterations in the actual putting together of the timbers, which now form as compact and well-fitted a frame about the stern-post as at the stem. In the old sterns the whole stress was borne by the transoms, especially the wing transom, which alone connected the two sides of the ship, and sustained the upright timbers. Now, the whole system of framing is adjusted accurately, with each part in mutual dependence on the rest; not subject to the severe strains which a rectangular form occasioned, and was unable to resist, but bound together as a strong arch and not to be disturbed by any pressure. Guided by the same principles, Sir Robert substituted everywhere the triangle for the rectangle, and thus strengthened his ships by a diagonal

system of trussing, applied inside the planking, and bolted through to the timbers, so as to divide the inner surface into a series of triangles; but this trussed frame has since been superseded by iron riders, which do not so greatly increase the weight of the ship, nor so much diminish the space for stowage. The introduction of steam-vessels has materially modified the relative dimensions given to the various parts of vessels, particularly increasing their length so as to diminish the resistance to onward pressure, and frequently giving extremely sharp bows, with flat bottoms or "floors."

The imperfections of theory, and the difficulties of experiment, have long retarded naval architecture; but of late years it has made unparalleled strides, and we trust it will continue to advance rapidly towards perfection. This desirable end would be greatly furthered by systematically recording the results of all experiments, and by a digest of the qualities of vessels, so that we might the more easily profit by past failures or successes. While, however, we cannot but lament that so many valuable facts as have no doubt been allowed to pass unnoticed should not have been treasured up for our benefit, we must rejoice at the efficient state in which the signal to "prepare for action" has found the "Wooden Walls of Old England." Our Dockyards, notwithstanding the number of experiments made to test new principles, scarcely ever turn out a ship which is not a credit to the nation, and there is every reason to hope that efficient vessels will be produced with increased certainty and facility every year. G. W. S.



Longitudinal Section of the Royal Albert, 121 guns

THE ROYAL ALBERT.

THIS noble ship, undoubtedly the most perfect specimen of a first-class three-decker hitherto constructed, was built at Woolwich by the late Mr. Oliver Lang, for many years the respected master-shipwright of that dockyard. Of stupendous size, but elegant proportions, she is an example of the improved construction of the present day, uniting extraordinary strength with beauty of form and roominess of quarters.

The use of iron is daily becoming more general in the royal navy. Hempen cables, which were apt to chafe and cut upon a rocky or coral bottom, have been superseded by chain cables, each about 150 fathoms long. The iron tanks which contain the water, and preserve it pure, were not in use during the late war; and the still greater improvement of distilling fresh water from the sea, first adopted by the French, is a prodigious economy of space. It saves the principal part of the main hold, formerly filled by perhaps 500 tons of water, and, with a small additional length to the vessel, leaves room sufficient to hold the engine, stoke-hole, and boilers.

By an improved disposition of the various hatchways in the *Royal Albert* large numbers of her crew will be able to repair instantly on deck, on any sudden emergency, or to board an enemy.

Provision is also made for the rapid passage of powder from the magazine, and for conveying, without confusion, during the heat of an engagement, the various ammunition requisite for the different decks armed with guns of dissimilar calibre; and every facility is afforded for the prompt removal of the wounded to the fore and after cockpits.

The *Royal Albert* is 220 feet long on her lower deck, and 60 feet 10 inches wide in her greatest breadth. Her

length of keel is 180 feet; her depth of hold, 25 feet; and her height from keel to taffrail, 65 feet. She is pierced for 140 guns, and carries 131, placed as follows:—32 sixty-eight pounders on her lower or gun-deck, each gun weighing 65 cwt., and measuring 9 feet long; 34 thirty-two pounders on her middle-deck; 34 thirty-two pounders on her main-deck; and on the quarter-deck 16 thirty-two pounders. The forecastle is furnished with 14 thirty-two pounders, and one large gun, weighing 95 cwt., and measuring 10 feet in length, on a traversing carriage, shifting on fighting centres, and throwing a shot of 68 pounds. The *Royal Albert* is thus able to discharge a broadside weight of 4000 lbs.

Her crew, including officers, seamen, and marines, will consist of a thousand men. For the sustenance of this company, she will stow for six months of the following articles, viz., bread, beef, pork, flour, suet, raisins, butter, cheese, sugar, cocoa, tea, lime-juice, tobacco, barley, peas, oatmeal, rum, wine, vinegar, oil, candles, soap, and slops (*i. e.* seamen's clothing), a total weight of 296 tons 4 cwt.

For warlike purposes she will carry 125 tons 15 cwt. of shot and cases, and 32 tons 5 cwt. of gunpowder.

To these must be added the weight of guns and carriages, amounting to upwards of 300 tons. And yet, so vast is the space, that this enormous bulk is hardly apparent, and everywhere we find abundant air, daylight, and room. A thousand men can live with comfort on board; and, should the necessity arise, her 131 guns will be manned as efficiently and as easily as the like number of field-pieces would be handled on shore. Besides her crew, she has accommodation for five or six hundred troops.

Her main-mast is 124 feet 8 inches long, by 40 inches in diameter. The main-topmast is 75 feet 6 inches, and the main-topgallant, with the pole above, rises 55 feet:—a total height from keel to truck of 256 feet 2 inches, or a

clear elevation from the water's edge of 231 feet, or 29 feet more than the Monument on Fish Street Hill. The main-yard is 111 feet long. When under full sail she will spread 10,850 yards of canvass. Her large ensign, or battle-flag, will require 270 yards of bunting. The engines have a nominal power of 400 horses, but may be worked up to 1200. The entire cost of the vessel and engine is about 200,000*l.*

In our section, an attempt is made to convey a popular view of the interior arrangement of this ship, and of the relative situations of the cabins, the division of the decks, and the communications between them.

The first mast on the right hand is the foremast; that in the middle, the mainmast; and that to the left hand, the mizen-mast. On the first range, extending on each side of the foremast, is the forecastle; and next to it, between the foremast and mainmast, are the waist and gangways, with the booms and boats. Between the main and mizen-mast is the quarter-deck; and to the left of the mainmast is the captain's cabin; above which is the poop. The second range is the main-deck, at the right end of which is the sick bay; and next to it the galley, or cooking apparatus; at the left end, beneath the captain's cabin, is the admiral's cabin. The third range is the middle deck, at the left end of which is the ward-room. The fourth range is the lower deck, at the left end of which is the gun-room. The fifth range is the orlop-deck, on which, between the main and mizen-masts, is the cockpit. The sixth range is the hold, which exhibits, in separate divisions, beginning at the right hand, the boatswain and carpenter's stores, the powder-magazine, the water, the stoke-hole, engine-room, the shot, the well, the salt provisions, the wine and spirits, the after powder-magazine, the bread-room, and, lastly, outside all, the screw and well, with apparatus for hoisting it on deck.

C. L. P.

PAPERS ON THE AIR AND SKY.

No. V.

THE WAY OF THE WIND.

When He who knew all things said to the Jewish Rabbi, "The wind bloweth where it listeth, and thou hearest the sound thereof, but canst not tell whence it cometh, and whither it goeth," he said what was true of all the learned men of that age: but the discoveries of Halley, and the very recent observations of Reid and Dove, have thrown much light upon the subject; and, although we cannot make all necessary allowance for the great number of interfering agencies, yet the main courses of the wind are well understood.

It is scarcely needful to remark that wind is nothing but the air in motion. We may learn our first lesson respecting it from the breezes that are frequently noticed on the shores of our own country in the hot summer weather, and which occur, with greater constancy, in tropical climates. Many of us must have observed how a cool sea-breeze sets in during the day, and a warmer land-breeze begins to blow shortly after sunset. The cause of this is easily explained. The land absorbs the heat from the sun to a far greater extent than the water does; and, becoming thus hotter, it naturally causes the air above it to be warmer than that which overlies the sea. Now air expands by heat, as other things do, and thus becomes lighter, and ascends, its place being supplied by colder air, which, in the instance before us, must come from the sea, thus forming the refreshing sea-breeze, which moderates the heat of the summer noon. But at night the reverse is the case. The land cools much

more rapidly than the water; so, after a while, it becomes actually the colder of the two, and the breeze now sets from the land to the sea. It will be evident, that when the air is sweeping along near the surface of the earth from the ocean to the shore, the space it is leaving must be filled from elsewhere, and what so ready to fill it as the air which has just risen from the heated ground. Accordingly, we always find that when there is a wind of this sort blowing in one direction, there is a contrary current in the upper regions of the atmosphere.

From this we may learn what is constantly taking place on a grand scale over the whole surface of the globe. The great heat near the equator causes a constant upward current, which draws the air from those regions that are colder. Hence there are two gigantic circles of wind, one in each hemisphere:—the air rising, passing through the upper parts of the atmosphere, descending as it nears the poles, and then sweeping again over the surface of the earth towards the equator. But there are several things which interfere with the regularity of this action. In the first place, this globe of ours is always revolving rapidly from west to east; and although this would not affect air when at rest, or blowing around the same latitude, yet it must be remembered that the air starting from the equator has a more considerable impetus than is necessary to accompany the earth in its rotation in higher latitudes; and hence the stream, which blew at first from the south, appears presently to be coming from the south-west; and when it arrives near the pole, it will have become almost a due west wind. The reverse takes place with the stream from the north; for the opposite reason, it is soon found to be blowing from the east of north, and eventually changes in like manner into a regular east wind.

Again, the configuration of the land, the direction of

mountain-chains, local alternations in the temperature of the earth, and a thousand other circumstances, are always interfering, and thus render the problem of the winds an extremely difficult one. The wind, too, meets with resistance in passing near the earth, and thus flows less quickly than it does in the higher regions, just as the water at the bottom and sides of a river never has so great a velocity as that in the middle of the stream.

This great circle above mentioned, between the poles and the equator, is observed in the trade-winds, which blow steadily from the eastward on each side of the "region of calms," that marks the hottest part of the earth's circumference. The returning "trade" in those latitudes is at such a height above the ground that it is only indicated by light films of cloud, which are often seen to move in the opposite direction to the prevailing current below. In our own climate the upper stream frequently descends, and, as a south-west wind, brings to us some of the warmth and moisture of the tropics; though perhaps we more frequently experience the lower current—the north-east wind, which will often blow steadily for weeks together, especially in spring, cold from the pole and the frozen plains of Russia.

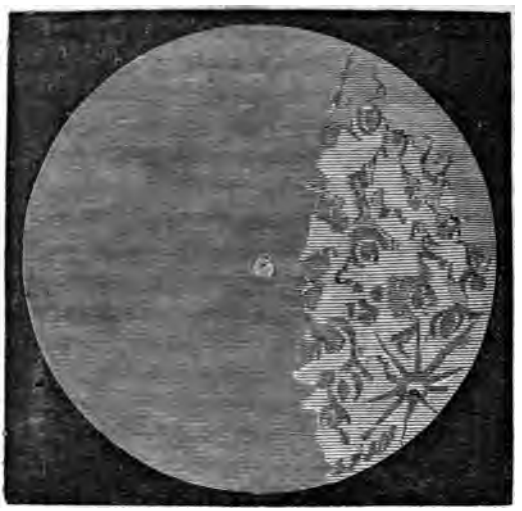
When two currents, blowing from opposite directions, meet, they must slide, as it were, past one another; but at their junction a whirlwind will be produced, such as we often see on a small scale in the eddies caused by a house, or some such opposing body. We all know how such little whirlwinds catch up dust or straws into the air, or sometimes play strange pranks with the dress of the unwary traveller; and we can readily understand how, when a larger vortex than these is sweeping, unobstructed, over the sea, the clouds above and the waters below should be caught into it; and meeting in mid-air, should form those *water-spouts*, which are so dangerous to small vessels. The sailors

are accustomed to disperse them, as they do human enemies, by firing cannon at them, and so breaking the circle of wind.

The most severe storms are produced, when the great south-west and north-east currents oppose one another. The gigantic whirlwind then formed may be scores of miles in breadth, and will often sweep right across the Atlantic, traverse our own country, and then pass on to Denmark and the Continent of Europe. Through the great attention lately paid to the "circular theory of storms," captains of ships are enabled, by observing the direction of the change of wind, to sail right away from the danger. For instance, if sailing eastward in the Northern hemisphere, he observe the wind veering from south to west, and then to north, the centre of the storm is on his right hand, and he, of course, will only have to turn his vessel towards the left, and the tempest may spend its fury harmlessly in the distance. Just in the same way the landsman may judge, by the rapid shifting of the weathercock, what is the course of a hurricane, which may be at that very moment tearing up trees, overthrowing hayricks, and unroofing houses.

Thus, however much we may have been accustomed to view the wind as an emblem of all that is fickle and capricious, we now see that, whether it be a West-Indian tornado, at the speed of seventy miles an hour, devastating whole islands, or a gentle breeze, which scarcely stirs the petals of a flower, it is as subject to fixed and regular laws, and as much a matter of scientific investigation, as the growth of a tree or the course of a planet.

J. H. G.



A NIGHT WITH MARS AND THE MOON.

On the 12th of March, as I was about to retire to rest, I opened a chink of the window-shutter to let in light in the morning, when I was startled by the magnificent spectacle: such a night of cloudless glory I have seldom seen. The moon was in the midnight splendour of her ripening second quarter; her eastern horn not quite filled, but shining calmly down with a rich golden lustre out of the deep purple sky behind, whose concave was spangled with silvery stars. But what caught my attention was, that close to her, at apparently not more than a yard's distance, was a fiery red and brilliant star, which a glance told me was Mars, evidently in conjunction with the moon. Remembering that there was to be an occultation of that planet by the moon some night this month—for I am not a professed astronomer—I immediately concluded that this was the very night in question.

What a fortunate occurrence! "Forthwith to rub the sleep from my eyes, to reapparel myself," to betake myself to the Nautical Almanac, was the work of a moment. To my great annoyance, however, I found that the occultation would not take place for nearly three hours. It was then about a quarter to twelve: this was a long wait for a tired and sleepy man. There was no alternative. If I went to bed, I should certainly never awake in time, and the whole phenomenon would be a real occultation to me. Then, the opportunity was so tempting, and a planet's occultation such a comparatively rare event, it must not be lost; so I made up my mind at once to fight resolutely with sleep, and see it out. I proceeded, therefore, in the first place, to prepare my great gun, a large refracting telescope 10 feet 6 inches in focus; and having examined the relative position and appearance of the two bodies in question, I commenced my lonely but deeply-fascinating watch.

All was silent in the house; every one sunk in slumber but myself. Alone, in my observatory—which is merely a room, from the south and west windows of which my large telescope is directed—I sat down. No sound broke the perfect stillness that reigned, save the ticking of the clock at hand, or the scraping of some restless mouse in the wainscot, or now and then a gentle sigh of the wind that stole mournfully past the open window, and away round the corners of the house. I took up a volume, and tried to pass some of the interval in reading, but in vain. That view through the open window fascinated me. My attention wandered from my book, and every now and then I was compelled to get up and take a glance through the telescope, or stand gazing away amidst the multitude of the starry host. And ever and anon the eye reverted to those two distant shining orbs. There they are, about to overtake and pass each other in the silent sea of space, as ships meet and pass on

with a joyous hail in our terrestrial oceans; but no sound will be heard from *them*,—no ships are *they*, but mighty worlds on the ocean of infinity seen from this terrestrial shore,—vast worlds rolling on, sweeping silently and swiftly through the darkness, but not within reach or hail of each other. No; one is so far behind the other, at such an immeasurable distance,* that if either were burst into fragments, and disappeared from its place in the sky, the other would not miss it, the thunder of its explosion would never be heard. On they sail through that cloudless blue, that wondrous, mysterious, aerial ocean on which they float; and to us, looking thus at them, they seem (distant as they are from each other) as though they were about to clash together. See how near they have approached one another!

But, hark! Again the wind! it is rising. What a blast was that that swept by! I got up and looked out; the sky was changed. On the horizon had been lying a mass of fleecy white clouds, while the sky above was pure and cloudless, and blue as sapphire. Low moans and gusts of wind, however, now arose that shook the window-sashes with a sudden wrench. I now observed these white clouds slowly ascending from the horizon to the zenith, and dispersing themselves through the clear space. However, the two objects of my solicitude remained still unobscured. Mars had drawn much nearer to his bright companion, so as to be nestling under her south-eastern edge, presenting a beautiful contrast of colour,—his fiery red being set off by the peculiar silvery white of the moon. While I was thus admiring this fine effect, a striking change took place. Without the appearance of a cloud near them, suddenly a bright and brilliant halo, or rather rainbow, glowed around them, encircling them both. The colours were the most vivid and beautiful I ever saw, and the whole assumed the

* 144 millions of miles.

appearance of an old-fashioned brooch which used to be greatly admired, called a *cat's-eye*, and composed of diamonds and other precious stones set with opal, which refracts the prismatic colours. This phenomenon came like one of the magic changes in a dissolving view, pale at first, and gathering strength until it had attained its maximum of brilliancy, in which green and scarlet had the predominance, until the eye actually ached with the intense glory of the spectacle (so like that described by the prophet Ezekiel, i. 28), rendered the more striking by there being no appearance of a cloud in the neighbourhood of the moon, but a clear, open expanse of dark space relieved against which these brilliant colours were exhibited; when, having at length exhausted themselves, they faded away, gradually leaving the two bodies they had encircled clear and untinted as before.

I now directed my attention to the telescope to watch the progress of the occultation. To the naked eye Mars did not appear more than two inches (apparently) from the moon's limb; but one glance through the telescope separates him several yards. To all appearance he had, however, just got into the field of view with the moon, part of the unenlightened edge of which, with its crater, was visible just opposite to him. The appearance of the two bodies was very beautiful. The disc of Mars was large and well defined: in his centre was distinctly visible one of those strange and irregular spots or dark patches, for which he is remarkable, and which are believed to be—and no doubt *are* — the tracing of his oceans, marking him out as a world like ourselves; indeed, the periods of his days and seasons correspond in a great measure to our own, his polar snows melting during his summer, to return again in winter. The ruddy complexion of this planet was still conspicuous through the telescope, proving that it is caused by something in *him*, and not in *us*, and either owing to his

atmosphere or soil—the latter being the most probable. The power on the telescope being upwards of 120, only a portion of the moon's limb was visible, being that which Mars was approaching. Several craters were distinctly and beautifully defined; and, as a small portion remained still unenlightened, bright islands of light, as the tops of mountains illumined while the base was in darkness, were to be seen. The part where Mars would first come in apparent contact with her was at the south-eastern edge, where a large, shallow, dish-shaped crater, named Schikard, lay upon the very border of light and darkness, part of it, indeed, extending into the dark. Several small mountains, or elevations, were visible within the bounds, or vast area of this enormous crater, or wall-surrounded plain, which (at a guess, I should say) was at least seventy miles in diameter. Mars, whose apparent progress was visible every few moments, seemed to be advancing directly for this crater, as though he were about to roll into it. My whole attention was now engaged and absorbed by the interest of this strange and beautiful sight; no sportsman, I am sure, ever watched with more intense interest the course of a favourite horse making for the winning-post than I now watched the course of these two worlds, one above four thousand, and the other two thousand miles in diameter, overtaking or passing one another in the boundless sky; for those who are not acquainted with the nature of an occultation should know that it is not a meeting from opposite sides that takes place on these occasions; but a race in the heavens, in which of course the moon is the victor, having the shortest course to run, and, accordingly, she overtakes and passes the distant planet: the appearance, however, was just the opposite to the view of the spectator at the telescope. As was natural, the larger body appeared stationary, and the smaller moving like a *ship* approaching a bright island. I gazed at this quiet,

but beautiful scene till my eyes ached. I feared to withdraw them for an instant, lest I should lose the golden moment of obscuration, and, while looking away, the planet might disappear. Not the least danger, however; the house clock strikes *two*. Is it possible I have still three-quarters of an hour to wait?—I cannot believe it—why, Mars is scarcely visible to the naked eye, so close is he to the moon. Again, I consult the Almanac: can it be a mistake of a figure?—surely he will be gone in two minutes more; I must look again. O despair! Mars, moon, and all, are gone,—utterly vanished and disappeared from view. Those hateful clouds! I knew they would serve me this way. The whole sky is covered, and a dark pall is spread over the bright objects of my anxiety. The wind was now howling loudly, the trees were waving their branches wildly, as if in mockery at me.

"I see how it is," I exclaimed; "unlucky wretch that I am! all will be over directly,—the critical moment, so long watched-for, will be past, and I shall not reap the reward of my labour. So much for astronomy in such a climate." I sat down very much chagrined, although I could scarcely help smiling to think what a fool I had been made of by the planets. Again I looked at the Almanac: I checked it with another and another, and found all correct; hope sprang up—the figures are right—all is not over yet—the clouds may clear off; wait a moment—courage! do not give up—there is half-an-hour yet to spare. Let me see,—"March 13, 3 hours 11 min. Greenwich time. Clock slower by 25 min. 22 sec. Dublin time," viz.: the difference of longitude bringing the period of contact to 2 hours 45 min. 38 sec. So far all right, if only those clouds would clear;—and see!—they are beginning already to disperse.

Certainly, astronomical prophecies are wonderful things. Here was a prophecy about to be fulfilled to-night, pro-

bably made three years ago at Greenwich. And just so: there are prophecies and promises made thousands of years ago which are destined to be as accurately fulfilled. Clouds of unbelief may interpose a temporary veil; but as soon as the hand of Time points to the set moment, all that God has spoken will be assuredly accomplished.

The clouds are all gone, and only a slight yellow haze surrounds the moon and planet. Mars cannot now be seen with the naked eye—he is swallowed up, as it were, by the lunar brightness; but through the telescope I see him still. The yellow fog has changed his ruddy hue to white, and he looks like a snowball as he approaches rapidly the edge already described. He is now apparently within not more than an inch of the moon's limb; and now, if I take my eye off for a moment, he will be gone. I accordingly took my stand at the telescope for the last time, determined not to move till the phenomenon was over, and the intense interest with which I watched is beyond description. I was particularly anxious to see what would happen, because, upon the sudden or gradual disappearance of stars at occultations by the moon depends a great question debated, viz., the existence of a lunar atmosphere. If there is an atmosphere, however rare, like our own, the star ought to dwell or hang for a few minutes on the edge before it disappears, according to the well-known law of refraction; but if there is no atmosphere, it should disappear at once, as though it were blown out like a candle. But both these phenomena have been seen to happen on different occasions, and, what is more strange, on the same occasion by different people.

This has left the question of a lunar atmosphere in uncertainty, and has made occultation an uncertain test, though not without deep interest on each fresh occasion. I had myself, last summer, witnessed the occultation of a fixed star

of the seventh magnitude by the moon, and it disappeared in a moment. It entered, or was immersed, at the dark side of the moon when not more than half enlightened, consequently the effect was curious and very beautiful; for not being able to see the dark part of the moon when it arrived at it and passed behind it, it seemed to be annihilated in space, or as if it had been blown out, or as if some giant hand had extinguished it, or as if, with a sudden bound forward, it had plunged into some dark gulf, and was swallowed up for ever.* Now,

* Mr. Nasmyth has suggested, in a letter which I lately received from him, what I fully concur in, viz. the possibility of realising at occultations an instant of time, and, therefore, as I conceive, of approximating in some measure at least to a notion of the swiftness manifested by the heavenly bodies, as seen actually *in transitu*. The occultation of a star by the moon is, indeed, the only opportunity that I know of thus afforded for gaining anything like a shadow of an appreciation in the mind of such grand and terrible objects—terrible from their swiftness combined with their size. Mr. Nasmyth accordingly says, "I know of no more perfect realisation of an instant of time than that of the disappearance of a star at occultation. It is quicker than your graphic '*blown out*'—quicker than *snuffed out*: it is gone—in the millionth of a twinkling!" This is true; and yet what is this to other and swifter movements of planetary bodies? The lunar motion of 2000 miles an hour is, after all, but the slow creeping of a snail compared to the lightning-speed of the planet Mercury, which rushes round the sun, accomplishing in the same short period of an hour *one hundred and nine thousand eight hundred miles!* Such movements as these, indeed, are utterly inconceivable and inappreciable to our present faculties. The motion of the moon, however, seems more within the reach of our conception, and the occultation of a star by her affords us a momentary glimpse at least—it can be no more—of this stupendous subject. And with a powerful telescope, the observer, stationing himself at a distance of from 500 to 1000 miles from her solid sphere, 6000 miles in circumference, can actually see it *in transitu*—see it pass (as a railway train rushes by the spectator) a stationary object in the sky above (the star which is occulted), but at a rate fearful to contemplate. This invests this phenomenon with a never-ceasing and solemn interest. Nor is this all. The grandeur, the stateliness of the motion—so peculiar, so different from anything terrestrial: there is, in fact, nothing at all resembling it that I have ever seen here below. Accordingly, Mr. Nasmyth truly and beauti-

however, I had a most interesting opportunity of comparing notes with the former occasion. A planet was about to be occulted—a more rare phenomenon; and having a disc, which the fixed star has not from its immense distance, a finer test would therefore be afforded. So large a disc would be likely to show colour or distortion in passing through a transparent medium like our atmosphere, if the moon possessed such. Consequently, the interest with which I looked increased every moment. Now—now—I thought, surely it will disappear; but no—not yet—it shines clearly and steadily. No change of colour or shape as yet: and now the circumference of its disc all but touches the edge of the large crater already mentioned. A little to the south of this, on the edge of the moon, were three mountains, whose bright tops stood prominently out of the darkness. Instead of passing directly behind the crater then, as I at first imagined it would, Mars directed his way, rolling, as it were, or walking along the edge of the moon straight for the illuminated mountains, along the tops of which he passed slowly, like a golden ball, half his disc having sunk behind them; but as he passed between each mountain, where there was necessarily a valley or opening, the entire disc became again visible for a moment. This was repeated thrice; when at length, having performed his beautiful and magnificent journey across the lunar mountains, he emerged for a second or two with but a third part of his disc visible, which slowly and gradually sank below the body of our satellite, and at length disappeared as our own sun sinks on the horizon of our western sky.

A more striking and beautiful sight I never witnessed. In so far as this occultation may be considered as a test of the existence of a lunar atmosphere, it is in one point only

fully observes, "I know of nothing more glorious than such sights; the majestic steadiness of the motion—no jerks which even the most perfect human mechanism has always more or less of, but a grand, solid, steady movement, that has much of the Divine majesty of mind in it."

slightly in its favour, and that not conclusive; for while not the least distortion or change of colour was visible which ought to have accompanied such a phenomenon if an atmosphere existed, the oblique direction of the planet's apparent motion was such as to account, in a great measure, for its gradual disappearance. I look, therefore, upon this occultation, as *I* saw it, as anti-atmospheric in its testimony. But Mars was gone from view, and a world had disappeared behind a space that my hand could cover. My watch and clock both testified to the accuracy of the appointment kept by these two planets at this solitary hour; or rather their *Divine accuracy* enabled me to regulate the *inaccuracy* and imperfection of human invention and manufacture; for I was enabled to set my watch, which was three minutes too fast, and the clock, which was as many minutes too slow, by a somewhat unusual method, viz. the disappearance of a universe which, together with its (probably) millions of inhabitants, its oceans, forests, valleys, mountains, and islands, rolled on and passed away in a moment, like a dream or vision of the night. As I turned the hands to the figures, the moon looked cold, deserted, and solitary after losing her companion; and so did I feel. So leaving her to herself, and Mars to find his way out at the other side, and be the object of some more patient watcher, particularly as I saw my enemies, the white clouds, again mustering for a charge, I retired to rest—but not to sleep. Visions of the glorious scene I had witnessed floated before my eyes; the discs of the two bodies I had been gazing at so long remained imprinted upon the retina; strange sounds rang in my ears; the open window was again before me; I thought I could see far, far away into the very depths of heaven itself; and a clear, soft voice kept sounding in my ear, "Come up hither, and I will show thee greater things than these."

J. C.

THE ANGEL'S VOICE.

I.

THE last notes of the anthem were still whispering amid the distant aisles, and the last footfall of the evening worshippers had ceased to echo through the venerable pile, when the stony eyes of the grim old carvings of the fretted roof looked down upon four silent men, who seemed so bound by some mighty spell that they could neither speak nor stir.

These four were famous amid their fellows for their power in song, and music knit them into a brotherhood peculiarly its own. Their names were different, but in song their hearts were one; and Wilhelm Berlenz, Oskar Neubert, Carl Dijeck, and Johann Meyer, were ever looked upon by their townsfellows as a family in themselves.

"Carl Dijeck," whispered Wilhelm Berlenz, "there was a voice amid the choir which savoured not of earth. That stream of song never passed through human lip."

"Hush, Wilhelm! hush!" muttered Carl Dijeck between his teeth, "'tis still vibrating upon my ear, 'tis still floating through my brain."

"I would 'twere mine," said Wilhelm Berlenz; "the golden chain which the townsfolk gave would I freely give again to have it for a single year."

"The voice which thou wouldest have is neither to be bought nor sold!" and as these words were spoken, light brightened around Wilhelm Berlenz and his comrades, till, dazzled by its radiance, they laid their hands upon their eyes.

"Wilhelm Berlenz," continued the one that spake, "thou hast truly said, thou hast heard a voice which singeth in other choirs than those of earth, it would not be well for

any to be intrusted with such a voice while they are in the flesh."

"I would give my life for it," answered Wilhelm Berlenz, "if only I might have it for a while."

"If it were given to thee," said the one that spake, "it would shake to pieces thy mortal frame, for it hath the energies of another life, and it would cast on thee terrible responsibilities which as a man thou couldest not fulfil."

"Nevertheless would I have it,—aye, even with them all."

"Thou canst have no gift, Wilhelm Berlenz, nor can thy brethren here, without having to give account thereof. Then, why shouldest thou wish for this?"

"Ever would we sing psalms, and be heard in madrigals, and serenades, and other songs no more, if we could sing after the fashion which we have just now heard." And to these words of Carl Dijeck's, all gave assent as though they had been one.

"*This* voice thou canst not have," said the being to whom Carl Dijeck's speech had been addressed, "but thou canst have that of the next degree, if thou wilt take the responsibilities which it entails."

"We take it," said they all.

"Remember! all God's gifts are vouchsafed for His own honour, and must be spent for, and thus return to, Him."

"We remember," said they all.

"In three years ye must give account."

"We will give account." And then the brightness which was around the four young men faded away and left them in the dim twilight in which they had been before, and solemnly, but withal gladly, they turned their steps toward their homes.

II.

When the twilight had long deepened into night, the four *brethren in song* met beneath the great oak-tree to

chant the Christmas carol through the streets of their quaint old town. With one consent they had discarded all such as they had used in former days, and chosen a rich grand psalm, for they knew that they had that within them for which the holiest words would be most fit. And when they made proof they felt that the angel's gift was theirs, for the power of song for which they longed so much thrilled along every nerve, and welled upward from their nature's lowest depths, and flowed forth in strains, the scores of which they had never seen, until they trembled within themselves and felt half terrified with the consciousness that they owned a power which was not of the earth. But although the four brethren trembled, they felt themselves upheld; fresh energies seemed ever to be supplied to be poured forth anew in song. Throughout the town then did they chant their Christmas carol, and while they chanted some slept, yet the music fell upon their wearied brain, and they dreamed of heaven; and some opened their casements and looked out, and tried in vain to pierce the gloom, and, not seeing any human form, reported for many a long year after, that angels had once sung a Christmas carol through their town:—four only in the old town knew who sang that night, and these four had each the angel's gift. Their carol being ended, the brethren in song went each one to his home to rest, and a long while tossed to and fro as they thought of the wondrous gift they had received; at length they slept, and each one saw himself alone on the spot where he had that day received his gift. The light was shining as it had done before; but now the being that spake could be seen, and each one saw that it was of another world, and that it was no marvel that it had sung so sweet a song. There was soft love in that being's eyes, and vast intellect enthroned upon its brow, and withal holy determination in its solemn face, and in one hand it held a balance, and in the other a crown and sword.

"By this balance of the sanctuary thou shalt be weighed," said the angel; "it will turn with a hair."

"We shall all be judged," said each one solemnly in his dream.

"Thou shalt be judged for all things, and for that which thou hast received to-day. A special gift hath an especial trial which it must undergo."

"Thou hast something besides this balance," said each one in his dream; "thou hast a crown and sword."

"They are the issue of thy life, thou shalt find one or other at thy journey's end."

Thus were the four brethren warned, and each awoke with a solemn feeling upon his mind, which never wholly passed away, and which, for a season, kept their gift in exercise on holy things alone.

III.

Soon it was discovered by them all that they had now a strange fascination in their speech, and that not only when they sang, but also when they spake, their fellow-men were moved by them as they used not to be in former days. Few could resist the magic of their voice, and albeit when they sang that voice was sweetest, still in mere speech it had a wondrous and mysterious power. This they each one knew, and with the knowledge came a tempting voice which said, "Turn to account these silver tongues, and with them gain high worldly ends." Had the four brethren remained together, mayhap they might have strengthened one another; for each knew the terms on which he held his wondrous faculty, but the tempter had scattered them asunder, and each now dwelt far separated from his fellow. Each one was with his tempter, and had no warning voice, save that which ever spake to him from within.

"Oskar Neubert," whispered a messenger of evil, "thou

art fitted for a higher post than this poor station where thou scarce hast bread. Less able men have nobler standing. If I were thee, I would not tarry here."

"They all have friends," replied the young man, "and without friends but little can be done."

"Thou canst befriend thyself; true nobility will not owe to another, when it has aught to spend which it can call its own."

"I have no friend."

"Thou hast thy voice, which if thou wilt use as thou shouldst will carry thee to fame and power, and put thee in Jassann Offling's seat, where in thy soul thou knowest thou hast often longed to be."

"Why then has not my voice done this ere now?" for Oskar Neubert did not deny that to possess earthly power was his highest wish, and that Jassann Offling's post was that to which he had long aspired.

"Because thy voice is weak. It is by concentration that all great deeds are wrought, thou spendest too much of its wondrous power in singing in the choir."

"I covenanted with myself," responded Oskar, "that if I could but have this voice, I would sing no other music but such as was designed for heavenly praise."

"Thou art not required to sing in round, or madrigal, or serenade. Thou hast only to abstain from psalmody, and, doubtless, with such a voice, the end desired shall be attained."

For some time after this Oskar Neubert still chanted with the choir; but day by day the thought of supplanting Jassann Offling grew more precious in his eyes, and he dropped off, until at length he altogether ceased. At this time the young man had some state papers to arrange, and was directed to attend with them in person before the king. "*Now*," whispered the Evil One, "use thy voice to some

effect, for thou art upon the highroad to power, Jassann Offling's place is nothing compared to that to which thou canst attain." Oskar Neubert appeared before the king, and what marvel if the monarch was smitten with his speech, and took him into his favour, and learned to yield to his persuasions, and chose his counsel before that of others; for that which was so sweetly spoken could not be easily cast aside. Oskar Neubert became great, and the third year from that in which he had received the angel's gift found him high in worldly power.

Johann Meyer had long loved Hans Kleggien's daughter, but loved, alas! in vain. The lovely Josephine was proud, and Hans himself had too much thought for the honour of his old house to wed his daughter with one who could not tell piece for piece with him in silver and in gold. Hans Kleggien was a man who could fit fortunes together, but who cared not for fitting hearts; but Josephine had no love for Meyer, and so all was well. Johann Meyer was proud also, but not, withal, too proud to love Hans Kleggien's daughter, even though no love was given to him in turn. So, walking by the river's bank one day, he felt something stirring within his soul, and some one said, "Thou mayest marry Hans Kleggien's daughter."

"It is impossible," said the young man; "I am too poor."

"Oh, thou hast a voice!"

"Yes! a voice to sing; but anthems won't win Hans Kleggien's daughter; they cannot of their very nature be addressed to her."

"But hast thou tried her with that anthem voice?"

"That voice is sacred," said Johann Meyer, "it is pledged for holy use."

"And yet it would win thee Josephine;" and then there was silence in Johann Meyer's heart.

Along the river's bank the young man walked, and much he thought of Josephine's dark eyes, and more of the words which he had just now heard, that Josephine could be won. "'Twere worth my while to try," said Meyer; and that night he ventured upon a song beneath the window of her room. It was a song in praise of love; and presently the latticed window opened, and the lovely Josephine asked who the singer was.

"Johann Meyer," said the young man; for he was bold in the consciousness of the power he held.

"Will Johann Meyer sing again?" asked Hans Kleggien's daughter.

"He will sing every night when love commands."

"Good!" said Josephine, "sing always."

And every night did Johann Meyer sing, until at length Hans Kleggien's daughter loved; and despite his pride and love of gold, the voice that won the daughter won the old man too, and Johann became his son. And so far as this world went Johann was a happy man, for Josephine was bound to him by the harmonious spell of his sweet, soft voice, and day by day he repeated the incantation afresh over her heart.

IV.

Carl Dijeck was fond of gold; and as he was one day counting over the rents of his small estate a voice whispered in his ear, "Thou canst improve thy wealth."

"Nay, nay," said Carl; "I have toiled hard, and except by great frugality, by saving from what I have, I cannot hope for more."

"Thou knowest Gaspar Pflug? Well, use thy voice on the old man as thou hast power to do, and he will leave thee all he has."

The thought struck Carl Dijeck as being very good, and

every morning and evening he sat by old Gaspar's bed; true, the more he used his voice on the old man the less he cared for singing in the choir, and more than once he found himself chanting irreverent words to the music which was still as lovely as before; but Gaspar Pflug was dying, and he had seen his will, and soon he went away, and left his money behind, and Carl Dijeck took it all, and was the wonder of his neighbours for the good fortune which had fallen to his lot.

Wilhelm Berlenz alone of the four brethren in song had no earthly gain from his wondrous voice. Day by day the vision of the crown and of the sword dwelt with him, and as he rose each morning he saw them plainly in the twilight of the evening that was to come. At times the young man half wished that he had not received the gift, but seeing that he could not divest himself of it, he bestirred himself earnestly to think what was to be done. For many a day when the choir had gone Wilhelm Berlenz used to remain behind, asking counsel from heaven as to what he was to do with his surpassing voice.

"Spend, and be spent in the service of the angel's King," was the reply, which was vouchsafed at last.

"Spend, and be spent," said Wilhelm to himself; "what shall I do?" and as he thought light flashed into his mind.

Wilhelm Berlenz was a physician, and day by day he stood beside the beds of the dying, the poverty-stricken, the outcasts, and the sad. The patients of the hospital loved to have him as their physician; for he soothed their pain with the gentleness of his words, and his voice poured energy into the spirits of the listless, and calm trust into the souls of the desponding, and peaceful hope into the hearts of the most wretched, for whom there seemed to be no comfort on the earth. Wilhelm was called the ghostly doctor, for men said he was a physician of the soul as well as of the frame, and that he had cordials for heart-wounds, such as none

others possessed. Albrecht Thiede had made himself nearly mad with wine, but Wilhelm Berlenz won him from the deadly drink. Graff Steinberg's daughter had a broken heart, but Wilhelm Berlenz taught her to look above for peace, and the tints of life spread themselves over her face again. Theodore Shrapt denied that there was a God, or heaven, or hell; but Wilhelm Berlenz sent him from the hospital a believing man, and afterward saw him die in peace.

Thus time sped on, and the third year from that in which the angel's voice was given saw Oskar Neubert possessed of power, and Carl Dijeck rich in gold, and Johann Meyer the husband of the one he loved, and Wilhelm Berlenz living for the good of the bodies and the souls of men. And at the appointed time light brightened once more around the four brethren in song. The crown and the sword again were seen, and she who held them first drew the sword, and marked Oskar Neubert upon the brow, and said, "Thou hast sold thy gift for power, thou art marked with that which will condemn." Then she marked Johann Meyer over the heart, and said, "Thou hast sold heaven's gift for human love, thou also art numbered unto wrath." Then she drew blood from Carl Dijeck's hand, and said, "Thou hast misspent thy talent, thou also art cast away." To Wilhelm Berlenz alone, to whom earth had given nothing, did she extend the crown, and seven days after Wilhelm died. From the other three of the brethren passed away all the power of song, Wilhelm Berlenz alone was promoted to become perfect amid the choirs of the land where melody has her home. And often did the members of the earthly choir, now shorn of half its splendour, mourn over their loss; and when they grew grey with age tell their children's children as they sat upon their knees, that in their youth they had one amid their choir who sang with an angel's voice.

P. R. P.

NOTES ON GREAT PICTURES.

THE VAN EYCKS AND OIL-PAINTING.

In the church of St. Bavon, at Ghent, is a picture which the verger points out to strangers with even more than the usual emphasis. It constituted one of those portable altar-pieces, commonly in the shape of triptychs, with which princes and wealthy merchants often provided themselves in the middle ages. These pictures are on panels of wood, and are so contrived that two side-doors, or wings, shall exactly fold over a larger centre division, and thus secure the whole from injury. They are sometimes small, and sometimes of large dimensions; when large, the folding-doors are divided by hinges, and the pictures are accordingly in five divisions instead of three, and come under the class of polyptychs, or pieces of many leaves: the outer side of the folding-doors is also occasionally painted.

The picture at St. Bavon's is of this latter description, but the church now possesses only the centre portions of this picture, one of the most celebrated in the world. The subject is "The Adoration of the Lamb;" and the painters were two brothers, Hubert and John Van Eyck, of Bruges. This picture is not only remarkable for its *impasto*, or for the beautiful character of its surface, but is particularly distinguished as the earliest great example of a method of painting which quite revolutionised the practice of the art in Europe—it is one of the oldest oil-pictures properly so called.

Hubert Van Eyck appears to have been the first who in *tempering colours* made use of *oils* and *resin*, instead of gum and water, or egg, size, and the sap of plants; and to a

brief description of the celebrated picture just mentioned, we will attach the history of the discovery of oil-painting in the Low Countries, and the dissemination of the method in Italy. It is a subject that has raised very much discussion in Europe, but has now, perhaps, through some recent discoveries, and through the labours of Sir Charles Eastlake, in his excellent work "Materials for a History of Oil-Painting," satisfactorily closed in favour of the original account of Vasari, and of the pretensions of the Van Eycks.

The Van Eycks appear to have settled finally at Bruges; whether they were born there, is uncertain. There were four of them, three brothers and a sister; Hubert, John, Lambert, and Margaret; all painters, and they appear to have executed commissions in common. Hubert was much older than the others, he was born about the year 1370; John was at least twenty years younger than Hubert, and he died in the prime of life in July, in the year 1441, when his elder brother had been dead already fifteen years: Hubert died at Ghent on September 18, 1426. These dates are important, and they are certain, as they are derived from official documents published by the Abbé Carton.* Hubert died while engaged on his great work the "Adoration of the Lamb," which was continued by John, but whether in Ghent or Bruges is not known. John, however, bought a house in Bruges in 1430, and that city became the head-quarters of the family from that time. The death of Hubert, the completion of this work in 1432 by John, and the residence of John as head of his family at Bruges, have all contributed to identify the labours and honours of the whole family with John individually. Hence in foreign countries, John was regarded as the inventor of the new method, the painter of the pictures of the family imported into foreign cities, and the master of all

* "Les Trois Frères Van Eyck," &c. Bruges, 1848.

the numerous members of the now distinguished school of Bruges.

There is nothing remarkable or unusual in this state of affairs, but this explanation sufficiently clears up all the difficulties and apparent contradictions in the popular history of oil-painting from the days of Vasari downwards, and which the self-esteem of the Italians has lately endeavoured to explode as a mere fable, owing to some necessary contradictions involved in a merely vague report. This discovery was fixed by Vasari, the Italian historian of artists, in the year 1410; but he gave the invention to John instead of Hubert, who must necessarily have been the inventor, from the difference of the ages of the painters, if the date be true.

At this early time, although in the Low Countries, in England, and in Italy, colours had been mixed with oil for ordinary decorative purposes, it had never been the custom to execute pictures with that vehicle; these were invariably painted with what are called body colours, which were mixed with water, tempered with egg, size, and gums, and this medium was commonly called *tempera*,—a term still used in contradistinction to the new oil medium. These tempera pictures, then, being liable to injury, and having also a dull surface, it was the custom to heighten and protect with an oleo-resinous varnish, and this varnish was not of the best manufacture for the purpose, not being sufficiently siccative; and painters were in the habit of exposing their varnished pictures to the sunshine, in order that they might be rapidly and thoroughly dried. The heat of the sun, however, appears to have occasionally caused the panels on which the pictures were painted to warp and split; and Hubert Van Eyck, to obviate the risk altogether, and do away with the necessity of varnishing, discovered, by various experiments, a more drying varnish, and eventually

mixed the colours themselves, with this in the first instance, and so not only obviated the necessity of varnishing, but thus, by at once producing a brilliant picture, he revolutionised the whole practice of the art throughout Europe. Oleo-resinous varnish was gradually substituted as a vehicle for the ordinary tempera, within little more than half a century, throughout Italy. It must be emphatically stated that the invention of the Van Eycks was not *oil*-painting but *varnish*-painting, in which, however, oil was the vehicle used; and this varnish took the place of the old favourite vehicle of the yolk and white of egg beaten up with the sap of the young fig-branches, a vehicle still employed in the East.

It was in 1420 that Hubert commenced with this improved vehicle his magnificent altar-piece for Judocus or Josse Vydt, for his family chapel in the church of St. John, now St. Bavon, in Ghent.

The picture is a polyptych, in two rows. In the upper row are seven subjects, in the lower five: the upper centre represents God the Father; on his right, the Virgin, a choir of angels, and Adam; on his left, St. John the Baptist, a choir of angels, and Eve: the lower centre represents the actual adoration of the Lamb, with many small figures, and on either side processions of the holy hermits and pilgrims, the just warriors and upright judges. The outer sides of the wings, also, are painted; above, in the centre, the Virgin and the Angel of the Annunciation, with the Erythræan and Cumæan Sibyls kneeling on either side; in the lower division, portraits of Vydt and his wife; and on the sides, St. John the Baptist and St. John the Evangelist, in chiaro-scuro. The whole polyptych or altar-piece thus containing twenty pictures. The central figures of the Father, the Virgin, and the Baptist, are of life-size, in a large style for the period, and admirable in colour and in *impasto:* these figures and some other minor compartments were executed

by the elder brother Hubert; the adoration of the Lamb and the other portions were painted by John. The work was completed on May 6th, 1432: this date is preserved in a chronogram on the frame of the picture.

The two central divisions of the picture are all that now remain in the chapel of St. Bavon; the two panels containing Adam and Eve were put away by the priests, on account of their nudity, but are still at Ghent, the remaining wings are now in the gallery of Berlin: that with the upright judges containing portraits of the two painters. After the restoration of the work by the Allies to its original site (for it had been carried away with many others in 1794 to the Louvre), in 1817, the priests, in the absence of the bishop, parted with the side portions to M. Nieuwenhuys, the picture-dealer, for the insignificant sum of 6000 francs, about 240*l.*; and this gentleman sold them, with a few other old pictures, to Mr. Solly, an English collector, for 100,000 francs, or 4000*l.* sterling. They ultimately passed, with that gentleman's whole collection, into the possession of the King of Prussia, for 500,000 thalers, or 75,000*l.*

It is a singular fact that so remarkable and valuable a work should have survived all the vicissitudes of fanaticism and war, to be eventually mutilated and dispersed by those who had it in trust from its origin downwards. Philip II. so far respected the rights of property, as to go to a very great expense in having it copied by Michael Cocxie: this copy was finished in 1559, after two years of uninterrupted labour, and for which Cocxie was paid 4000 florins, or about 400*l.* sterling. When painting his copy Cocxie complained to Philip that he could not procure a sufficiently good blue for the Virgin's drapery, upon which the king wrote to Venice to Titian for some ultramarine, which Cocxie duly received; and he used a quantity to the value

of thirty-two ducats, over the blue mantle alone of the Virgin. This copy remained long in the chapel of the old palace of Madrid, whence it was removed during the French occupation of Spain by General Belliard to Brussels. Like its original, this picture, too, has now been dispersed: the two centre pieces are in the Berlin Gallery; the figures of the Virgin and the Baptist are in the gallery at Munich; and the blue dress is, indeed, beautiful in its colour: the other portions are in the Royal Gallery of the Hague.

This admirable picture at Ghent, now upwards of 420 years old, is still nearly as fresh and perfect as when first executed, and is certainly in better condition than many English pictures executed within the present century. We have a fine example of the durability of the Van Eyck paintings, in the National Gallery, in a picture, perhaps of John himself and his wife, painted in 1434, and still perfect. The beautiful works of Etty, of Turner, those of Hilton, and some of those even of Wilkie, are already showing alarming symptoms of decay, for which there is no other reason than the neglect of a proper care in the selection of the vehicle used in the preparation of the colours. The pictures of the Van Eycks will be, centuries hence, in much the same excellent condition that they are at present, while some of the best works of our painters will scarcely survive the century. What the vehicle of the Van Eycks was is not known. It was oleo-resinous, was used sparingly, and the colours were laid on with extreme care: the *special mixture* of oils and resins, whether linseed, poppy, or nut, amber, copal, Sandarac, mastic, or purified turpentine, *not their use*, was the particular invention of Hubert; with this medium, *oils and other mixtures*, the Van Eycks tempered their colours; and such was their gloss, that the pictures required no varnish afterwards. The beautiful effect of their pictures could not *but attract* notice, and the method spread so rapidly, that,

as early as 1417, other masters were practising it. The time generally assigned to the invention of the improvement is, as stated, 1410.

The reputation of John Van Eyck was so great, that his pictures were carried to foreign parts. Some of these pictures were carried as far as Naples, and that city now possesses three works attributed to John Van Eyck :— the "Adoration of the Magi," in the church of the Castello Nuovo; the "Descent from the Cross," in the chapel of San Domenico ; and "St. Jerome," in the Museo Borbonico.

The "Adoration of the Magi," in the Castello Nuovo, is the picture to which the following story is attached. Antonello degl' Antoni, a young painter of Messina, had visited Naples for the purpose of prosecuting his studies : this was about the year 1442, as Alphonso was then King of Naples ; and Antonello was about twenty-eight years of age. It was in the possession of the King Alphonso that Antonello of Messina saw the picture of the "Adoration of the Magi," of wonderful *impasto*, and evidently executed in some new method. Antonello at once set out for Flanders, in order to learn of John of Bruges, its painter, the secret of this new method. He may have arrived in Bruges in the same year, or even a year or two later, but, at any rate, according to Vasari's story, he must have arrived after the death of John Van Eyck, who was buried in the church of St. Donatus in July 1441. Antonello, therefore, was not a scholar of John Van Eyck, yet he may have easily acquired all he desired in John's house, in which his widow was still dwelling, and probably not only his brother Lambert, but also his sister Margaret. That the school, or firm, of the Van Eycks, was still continued, we know from documentary evidence, and Antonello could acquire the method as well from Lambert as from John ; and this he doubtless did. The works of all the brothers were, as already mentioned, identified with the

name of John, as the most celebrated; and this took place in Flanders itself, even four years after the death of that celebrated painter: a picture painted in 1445 by Lambert for St. Martin's at Ypres was recorded as the work of John.

It was about the year 1445, therefore, that Antonello acquired this new method of painting; and in some period between 1445 and 1450, he left Flanders, returned to Italy, and visited Venice; on which occasion it does not appear, however, that he painted many pictures, but he communicated his new method to Domenico of Venice, known as Domenico Veneziano; and the first oil pictures that we know of being publicly executed in Italy were those, long since perished, of the Portinari Chapel in Santa Maria Nuova, at Florence, painted by Domenico Veneziano and Andrea del Castagno, about the year 1460.

Up to this time, though no secret in Flanders, the method appears to have been kept a secret in Italy, and its possession cost Domenico Veneziano his life. The artists painted in their respective manners,—Domenico in oil and Andrea in fresco or tempera; when the superior brilliancy of the work of Domenico attracted public attention, and excited the jealousy of Andrea. Andrea, however, soon contrived to draw his secret from Domenico, and they worked on well for a time; but it appears that he early conceived the infamous idea of destroying Domenico, and thus being the sole possessor of so valuable a secret; although the superior effect of Domenico's colouring and the praises he acquired appear to have been the chief inciting causes to the crime. Domenico was a good performer on the lute, and occasionally, after the completion of their daily task in the Portinari Chapel, they spent the evening together as intimate friends, Domenico enhancing the pleasures of the evening by his musical attainments. It was *one* evening, about the year 1464, at latest, most pro-

bably earlier, when Domenico took his lute and requested Andrea to join him, but Andrea pleaded his anxiety to complete a certain portion of his work before desisting, and declined accompanying his friend. No sooner, however, was Domenico gone, than Andrea left also, waylaid him, struck him severely on the head with a piece of lead, and returned to his work in the chapel. He was soon informed of the calamity that had befallen his friend Domenico; he hastened to the spot, and the unsuspecting Domenico died in the arms of his treacherous companion. The story was first disclosed by Andrea on his death-bed; and ever since he has been distinguished by the just title of "Castagno the infamous." The works of Domenico were left unfinished.

Antonello himself seems to have done little to disseminate the new method for some years; though he eventually established it at Venice, where Bartolomeo Vivarini painted a picture in oil in the year 1473. This was at the period of Antonello's second visit to that city. The earliest of Antonello's known pictures, preserved, is in the Academy at Antwerp, and bears the date 1475. Its subject is the Crucifixion, and it is an inferior work: it is painted on a small panel of wild chestnut, and was probably executed at Venice.

Such is the substance of the history of a complete revolution in the practice of painting; but it must be again clearly stated that this discovery of the family of the Van Eycks at Bruges, and introduced into Italy by Antonello of Messina, was not the mere mixing of colours with oil, but the acquisition of a valuable oleo-resinous medium. Vasari expressly mentions that Van Eyck, by boiling linseed, poppy, and nut oils, with other mixtures, obtained that *varnish*, which not only he, but every painter in the world, had long desired.

Oil-painting is now general throughout Europe; but it was long before *tempera* painting was given up even in Flanders. It may appear remarkable that at present it is impossible to identify the special practice of the Van Eycks with any present method, though it must doubtless be preserved in the Low Countries; and it is probable that the common method with the Dutch and Flemish painters previous to Rubens and Rembrandt was an extremely slight modification of it. The modifications of individual practice will be incessant; and it is the search after new facilities supposed to be acquired by new vehicles which has been the destruction of modern practice; present effect superseding all consideration of durability: some modern pictures contain as much vehicle in themselves as would have been sufficient for all the pictures painted by the whole family of the Van Eycks put together. Every unnecessary touch in a picture is an injury to it; it is a perpetual incumbrance exposed to perpetual risk; the upper surface being destroyed by an under surface in, perhaps, all cases. The most obvious lesson taught by the great work we have had under consideration is that, whatever they may be, painters should be sparing with the vehicles in which they mix their colours. The *impasto* of early Venetian pictures is much the same as that of the "Adoration of the Lamb" at Ghent, the works of the Vivarini, the Bellini, and the earliest works of Titian, painted with a very similar vehicle, and with the smallest possible quantity of it, are still in a perfect state, while later works of the Venetians, as of the Flemings, and of our own painters, who have sacrificed almost every other quality to expedition and effect, are already half obliterated, and are only vieing with each other in the race of decay.

R. N. W.

THE STORY OF GREAT HISTORIES.

"THE DECLINE AND FALL OF THE ROMAN EMPIRE."

EDWARD GIBBON was a sickly child, and,—often confined to his bed whilst his companions were romping, — books became the chief solace of his lonely hours. It was the middle of last century when "The Universal History" was in course of publication, and its new volumes, as they successively appeared, were the most welcome of visitors in the young invalid's chamber. They awakened a taste, for the gratification of which the materials were more ample than dainty; and "many crude lumps of Speed, Rapin, Mezeray, Davila, Father Paul, &c., were devoured like so many novels." And soon the intellectual vivacity, which usually urges a delicate youth into some path of scholarship, conducted young Gibbon to the historical ascent of Parnassus.

Walter Scott was fifteen years old, and was taking his first excursion on a pony of his own, when the vale of Perth burst upon his view. "I recollect," he says, "pulling up the reins without meaning to do so, and gazing on the scene before me as if I had been afraid it would shift before I could distinctly observe its different parts, or convince myself that what I saw was real. Since that hour the recollection of that inimitable landscape has possessed the strongest influence over my mind, and retained its place as a memorable thing." And it is with similar interest that we read Gibbon's experiences when, also in his fifteenth year, he got the first glimpse of that mighty panorama of which he was to become the peerless painter. "In the summer of 1751 I accompanied my father on a visit to Mr. Hoare's, in Wiltshire; but I was less delighted with the beauties of Stour-

head than with discovering in the library a common book, the 'Continuation of Echard's Roman History.' To me the reigns of the successors of Constantine were absolutely new; and I was immersed in the passage of the Goths over the Danube when the summons of the dinner-bell reluctantly dragged me from my intellectual feast. This transient glance served rather to irritate than to appease my curiosity; and as soon as I returned to Bath, I procured the second and third volumes of Howel's 'History of the World,' which exhibit the Byzantine period on a larger scale. Mahomet and his Saracens soon fixed my attention; and some instinct of criticism directed me to the genuine sources. Before I was sixteen, I had exhausted all that could be learned in English of the Arabs and Persians, the Tartars and Turks; and the same ardour urged me to guess at the French of D'Herbelot, and to construe the barbarous Latin of Pocock's 'Abulfaragius.'" And thus, at the most susceptible period of existence, there rushed into these enthusiastic spirits a tumult of delightful ideas and brilliant realisations, which were destined to arrange themselves and reappear as the finest creations of genius. From the pages of Echard, and from the Links of Tay, the same germs of great thought arise and alight on every reader who opens the volume, on every tourist who takes a look from the Wicks of Baigley; but the mind had need to be a good and virgin soil if the ethereal seeds are to spring up in productions as exquisite as "The Fair Maid of Perth," or as stately as "The Decline and Fall of the Roman Empire."

In the progress of years the young Londoner outgrew his earlier ailments, and enjoyed that firm health so rare among book-worms, yet so essential to intellectual ascendancy. For although a club-foot or a weakly constitution is often the means of directing into literary channels the *energy* which would otherwise have gone off in yachting

or tiger-hunting, it is little which genius can achieve if mated for life to shattered nerves or a bad digestion. And there was truth as well as humour in the Last Minstrel's admission, when he gave the credit of his marvellous exploits to sound sleep and a superior peptic apparatus. Occasional verses and magazine essays may be thrown off in bright intervals by the victim of all the "pathies;" but the architect of a great intellectual pyramid,—the builder of an epic or a "Novum Organon," and still more, the constructor of a first-rate history,—had need to be hale as a fish and strong as a lion. It was in the camp, and in the unwelcome activities of the local militia, that Gibbon's frame got the confirmation and case-hardening which fitted it for the toils of herculean authorship.

Whilst still a youth at college he was haunted by projects of historical composition; and from time to time he made commencements on "The Age of Sesostris," "The Revolutions of Switzerland," "The Life and Times of Sir Walter Raleigh;" but was happily led to desist before crossing the Rubicon of Paternoster Row. In the meanwhile, obeying an irresistible impulse, he went on amassing antiquarian and geographical information, till he was thoroughly at home in each of the by-gone Europes; and journeys in France and Italy gave the freshness of a personal familiarity to the scenes of great transactions. But it was not till his twenty-seventh year that the idea dawned on his imagination which, by concentrating all his powers on one great purpose, gave a delightful occupation to his days, and secured for his name a deathless celebrity.

Few things are more interesting than the origin of a famous book; and although a big book is not always a great one, when, in the last volume of a ponderous but well-known "History of the French Revolution," we came to the following paragraph, we confess that for the moment that big

book looked noble, and all of a sudden we felt a respect for its author. After describing the magnificent review by the Allied Sovereigns in Paris, the narrator adds:—"Among the countless multitude whom the extraordinary events of the period had drawn together from every part of Europe to the French capital, and the brilliancy of this spectacle had concentrated in one spot, was one young man, who had watched with intense interest the progress of the war from his earliest years, and who, having hurried from his paternal roof in Edinburgh on the first cessation of hostilities, then conceived the first idea of narrating its events; and amidst its wonders inhaled that ardent spirit, that deep enthusiasm, which, sustaining him through fifteen subsequent years of travelling and study, and fifteen more of composition, has at length realised itself in the present history." A purpose so conceived and a ruling passion thus sustained have a grandeur quite heroic; and, could they have cleared prejudice from the author's eyes, and lent some grace to his style, they would have converted into an illustrious literary monument a work which, as it stands, has only the front elevation of a palace, with the arrangements of a barrack and the contents of a vast magazine.

"It was at Rome," says Gibbon, "on the 15th of October, 1764, as I sat musing amidst the ruins of the Capitol, while the bare-footed friars were singing vespers in the temple of Jupiter (then a church of the Franciscans), that the idea of writing the decline and fall of the city first started to my mind." By-and-bye the decline and fall of the city expanded into the Decline and Fall of the Empire; and, as the plan grew more and more definite, the favoured seer addressed himself to its execution with a deepening devotion. He purchased the Theodosian Code, and, with a gold-finder's eagerness, from mountains of folios, — from the Annals of Muratori, Baronius, and other alluvial compilers, and from the

hard and quartzose matrix of Fathers and Jurists, — he sifted out every fact which could illustrate the politics, the commerce, the leading characters, and the ways of that long-departed time.

At last a commencement was made of the actual composition; but it was long before the fastidious author could hit the desired medium "between a dull chronicle and a rhetorical declamation." The second and third chapters were written over twice, and the opening chapter thrice; and the fifteenth and sixteenth were cut down from the size of a volume to a hundred pages before the writer could regard them with any satisfaction. We doubt if he was correct in his theory as to the "middle tone" of history. It would surely be better to let the style rise and fall with the subject, than to sing in the same heroic cadence the gossip of a court and the conflagration of a capital. Relieved by no flashes of wit nor any touches of tenderness,—for flippancy is not wit, and sentiment is a poor substitute for genuine feeling,—Gibbon's stately tramp grows oppressively monotonous. By some compared to a military port, to us it only suggests the gait of a Hampshire militia-man. Toes out, arms in, chin raised, it looks conscious of being looked at, and is never so stiff as when "standing at ease." A good style is like the movements of a thorough-bred gentleman, never making you wonder who taught him his steps; or rather like those of a man whose native refinement is the inner music coming out in graceful and various action. Daniel Defoe and David Hume are able to walk; Edward Gibbon constantly marches, and even in a country ramble he remembers the uniform and stalks sublimely. A little variety would be a great relief; and, if such dignity must not unbend to a social saunter, you often wish that he would quicken his pace and get over the ground more lightly.

The first quarto made its appearance in February 1776, and was received with such ardour that in a few months a second and a third edition were required; and in April 1781 it was followed by volumes second and third. Soon afterwards the author withdrew to a delightful retreat at Lausanne, on the shores of the Lake of Geneva, where he was surrounded by a private library of six or seven thousand volumes, and had all the inspiration which could be derived from an exhilarating atmosphere and an exquisite prospect. Here the labour of four years completed the work which had absorbed the richest results of twenty years of travel, meditation, and reading. In a well-known passage of his autobiography, the author records its memorable conclusion: "It was on the night of the 27th of June, 1787, between the hours of eleven and twelve, that I wrote the last lines of the last page, in a summer-house in my garden. After laying down my pen, I took several turns in a covered walk of acacias, which commands a prospect of the country, the lake, and the mountains. The air was temperate, the sky was serene, the silver orb of the moon was reflected from the waters, and all nature was silent. I will not dissemble the first emotions of joy on recovery of my freedom, and, perhaps, the establishment of my fame. But my pride was soon humbled, and a sober melancholy was spread over my mind, by the idea that I had taken an everlasting leave of an old and agreeable companion, and that, whatsoever might be the future date of my history, the life of the historian must be short and precarious. I will add two facts which have seldom occurred in the composition of six, or at least of five quartos. 1. My first rough manuscript, without any intermediate copy, has been sent to the press. 2. Not a sheet has been seen by any human eyes, excepting those of the author and the printer." With the important manuscript

the victorious student hastened to London, and on his fifty-first birthday, May 8, 1788, the three concluding volumes were published.

Such were the origin and progress of "The Decline and Fall of the Roman Empire:" on the whole, the most masterly performance of the Historic Muse of England. On its mighty canvass are projected the colossal figures of Constantine, Justinian, Belisarius, Mahomet, Charlemagne, Attila, Saladin, Zingis Khan, and Gregory the Great; and, as its vast panorama revolves, we contemplate the establishment of Christianity, the pillage of Rome, the invasions of the Goths and the Huns, the foundation of the French monarchy, the rise of the Papacy, the progress of the Byzantine Empire, the origin of Mahometanism, the victories of the Saracens, the Crusades, and last of all, the capture of Constantinople by the Turks; the whole forming "the greatest, perhaps, and most awful scene in the history of mankind," and possessing an importance quite peculiar as the historic isthmus along which the world that once was found its way into the world that now is, and which again in its turn may be passing away.

The general execution of the work is worthy of its grandeur. Where individual portraits are required, they are sketched with firmness and precision; the several groups are arranged with consummate skill; and the impression of general magnificence is not impaired, but enhanced by the elaboration of accurate details. And although its veracity has often been assailed, and the writer has been accused of quoting authorities which he never consulted, we believe that the critics best qualified to judge are the most impressed with the historian's research and industry.

His faults were neither incompetence nor idleness. The fatal one was "an evil heart of unbelief," excluding from the scene that pervasive and all-controlling Power which

imparts to events their deep significance, and which gives to the devout student of human history his strongest consolation. To say nothing of the unfairness and transparent animus of those passages which touch on Christianity, the tone of the book is entirely destroyed by its author's levity. Not only do the innuendoes and irony of the free-thinker suggest doubts as to the veracity of the witness-bearer, but they are sadly inconsistent with his own standard of historic dignity. Nor can a heartless book be entirely popular. Irreligion is inhumane; and, with affections constitutionally languid, Gibbon had not the benevolence which is inspired by the Gospel. Without being a misanthrope, he is an evident egotist, and so faintly is he concerned for the welfare of his species, that he can get no hold on the reader's sympathy. Whilst admiring the glowing tints of the picture, the student complains of the coldness of the gallery, and is reminded by incipient rigours not to protract his stay in such a comfortless clime.

Nor can any language sufficiently reprobate those passages which make it so needful that Gibbon should be decently edited. Their appearance in the original work amply accounts for the writer's hatred of Christianity. But if the purity of the Gospel was sufficient to awaken the rancour of a spirit so impure, happily modern society has no toleration for rancour thus aroused. Able men, like Byron and Gibbon, who thirst for posthumous fame, would do well to remember that of all paths to oblivion a book's surest road is its own immorality. The wine may be good, but no one will drink it if a musk-rat has made free with the bottle. And although Christianity can very well afford to preserve the two famous chapters as the sword of a vanquished Goliath, the sanatory commissioners must remove the offensive materials which an unscrupulous enemy has collected in order to taint our moral atmosphere.

With all these abatements,—and they are abundantly grave,—it may be questioned if any modern has produced a work at once so profound and so popular, so extensive and yet so well sustained, so charming in its episodes, and so commanding in the interest of its leading narrations. And when it is remembered that it connects Ancient History with Modern, and takes us back to the cradle of our existing civilisation, no national history can equal its importance. The sequel to Polybius, Josephus, and Tacitus, it is the proper introduction to De Thou and Sismondi, to Robertson and Hume; and the man who, from its eminence, makes a good map of the horizon will have landmarks wherever he goes. J. H.

REVIEW OF THE MONTH.

THE most conspicuous light remaining in the literature of our Northern capital has disappeared. The "Isle of Palms" and the "City of the Plague" will take a permanent place in English poetry; but much of Professor Wilson's fame was of that kind which passes away with the coeval generation. With exuberant spirits and extraordinary physical powers, in his twofold calling as lecturer on Moral Philosophy and as the "Christopher North" of "Blackwood's Magazine," he led a sort of extempore existence, pouring forth in floods of dazzling diction the literary criticism and political sagacity, the satire and the tenderness, the fun and the philosophy, of which there were few larger holders and not one more generous prodigal; and he was repaid on the instant with the plaudits of an enthusiastic class-room or the suffused eyes and resounding laughter of ten thousand readers. The terror of pedants and a grim

foe to free-traders, the "Noctes" were a sort of Sherwood Forest, in which he patrolled, ready to do battle with all presumptuous intruders; and many a literary upstart, and eke many a Whig lawyer, had long reason to remember the weight of his quarter-staff. But such was his sympathy with everything human, and so unmistakeable was the kind-heartedness which mingled with his wildest mischief, that betwixt himself and many of his victims there subsisted to the last unbroken good humour; nor were the instances few where his ardent temperament led him to admire and to praise far beyond the merits of his author or the verdict of a less generous public. In the hey-day of "Maga," the first of the month was a sort of illumination in which the firmament of "Auld Reekie" blazed with rockets and Roman candles, and its streets were all flashing with crackers and squibs; and though much of the point is now lost amidst forgotten personalities, these early volumes will always be a rare repository of wit, and fancy, and rich poetic criticism, and a prized memorial of the wealthiest and most genial of our modern rhapsodists. Mr. Wilson was born at Paisley May 19, 1785, and died at Edinburgh April 3, 1854. He succeeded Dr. Thomas Brown in the chair of Moral Philosophy, in 1820.

The same month has deprived the University of Edinburgh of its oldest Professor, and mineralogical science of its oldest surviving patriarch. Mr. Jameson was an enthusiastic disciple of Werner, and was one of the last to surrender the geological theories of his admired and eloquent master. He occupied the chair of Natural History in Edinburgh for fifty years; and in its Museum, and in the Philosophical Journal which he edited, as well as in his separate treatises, he has left memorials of a mind, which in the field of Natural History was almost encyclopedic, and which had the merit of being pre-eminently orderly and systematic.

Mr. George Newport died at London on the 6th of April. By profession a surgeon, he eventually devoted himself almost entirely to researches in the physiology and structure of animals, more especially insects. A paper on the nervous system of the Privet Hawk-Moth (*Sphinx Ligustri*), published in the Transactions of the Royal Society, at once placed his name alongside of Lyonet, whose dissections of the *Cossus ligniperda* laid the foundation of all that has since been accomplished in insect anatomy. Mr. Newport was latterly engaged in a series of physiological investigations, which his death leaves incomplete. With a view to some experiments, he had been collecting live frogs in marshy ground, and contracted a fever,—the fatal termination of which has added his name to the long list of the "martyrs of science."

The last number of the "Edinburgh Review" contains a valuable paper on the "Consumption of Food in the United Kingdom." It strikingly exhibits the rising standard of comfort in the community as indicated in the average supply of food to each person. Thus, each inhabitant of the island consumed of the following articles at the periods named :—

	1833.	1843.	1853.
Bread, stated in bushels of wheat	8	8	10½
Sugar, in lbs.	18	16	30
Coffee, in ounces	14	16	20½
Tea, in ounces	19	22	34

In other words, Free-trade has

"Added nearly a third to our Bread,
Nearly doubled our Sugar,
Added a third to our Coffee,
And nearly doubled our Tea."

It is also a remarkable fact, not noticed in the Review, that although a hundred millions worth of gold has been

added to the market of the world within the last five years, there is no depreciation in the value of that metal: proving that the increase of commodities must have kept pace with the increase of the currency :—in other words, that a hundred millions of pounds' worth of comforts must have been added to the world's store within these years.

We must confess that we are not entirely superior to the common distaste at printed sermons. Yet who can help reading the discourses of Taylor and Barrow, Horsley and Chalmers? Occasionally, too, volumes come forth which conquer our prejudice; and of late we have met with some which even in print are so interesting that we envy the original hearers. Of these, the most life-like and speaking is Mr. Jay's "Female Characters of Scripture." Mr. Bradley has added to his series "The Trials, Duties, and Encouragements of the Christian Life,"—as lucid, as exhaustive, as evangelical in sentiment, and as charming in style, as any that went before. Mr. Bruce has produced a "Biography of Samson," in which the giant is depicted with the mystic touches and the shadowy grandeur of Rembrandt; and if there be any fault at all, it is the fault of a hero's biographer,—excess of affection. Of Dr. Gordon's lofty intellect we have the worthy memorial in "Christ as made known to the Ancient Church: an Exposition of the Revelation of Divine Grace, as unfolded in the Old Testament Scriptures." And though nothing can reproduce the flash of an eagle's eye or the voice of a son of thunder, a work so judicious as this, so fraught with maturest wisdom, and so superior to all freaks of fancy, will be welcome to those who love the Bible already, and who wish to love it more.

Pl. III. Polypifera.

LIFE, IN ITS LOWER FORMS.

No. III. (*continued.*)

POLYPIFERA.

LET us suppose that the buds continually put forth from the sides of the Hydra, instead of falling off to commence a new and isolated existence, remained permanently attached to the parent stock, giving forth in their turn buds, becoming permanent branches. We should then have the essential form of a compound polype; such, for example, as that of the great marine family, *Sertulariadæ*. Here we find the germ first developing a single Hydra-like polype, consisting of a slender stem or body of granular flesh, enclosing a stomachal cavity, the orifice of which is surrounded by a circle of sensitive tentacles. Soon, however, a lateral bud projects, which shoots upward and developes a similar head of tentacles, while, from the side of this, another shoot still carries up the rising stem, which assumes a plant-like condition of branching stalks, with many lateral tentacled buds. It is true that in these marine species we commonly find an additional structure, of which no trace appears in the fresh-water Hydra:—the whole compound animal is enclosed in a tube of transparent substance, somewhat flexible though firm, resembling horn, an exudation from the gelatinous integument; and this tube, at every bud, takes the form of an open cell or cup (varying much in shape according to the species), into the cavity of which each individual polype-head can withdraw itself on alarm, and from the orifice of which it protrudes and expands when seeking prey.

In the accompanying Plate, the figure *a* represents one of the most regular of these species; and, therefore, one

whose construction is peculiarly intelligible. It is a group of the polype named *Laomedea geniculata*, very commonly found springing from the broad leathery leaves of the fingered tangle, *Laminaria digitata*, that great olive-brown sea-weed that waves its huge fronds to and fro just below the level of the lowest spring-tides. The first appearance of the polype is a slender horny thread that creeps along the surface of the leaf, adhering firmly to its surface. Presently such a tiny budding stem as we have just described springs up from the root-thread, which continues to creep on its way over the leaf, now and then bending its course at an abrupt angle, and sending up fresh stalks at regular intervals, which at length become a miniature forest. A few such stalks are represented of the natural size: and at fig. *b*, one of these, or at least a portion of one, is shown as it appears considerably magnified. The horny tube is seen, with its cup-like cells: the body of the polype, a thread of gelatinous flesh, permeates the stem and the branches, maintaining a common life: at intervals, the polype-heads project in the manner of buds, each occupying its transparent cell, and displaying its crown of tentacles which radiate on every side. The lower cells are commonly empty, the polype-heads having died out, successively, as young ones continually shoot forth at the extremities of the branches.

At certain seasons of the year peculiar vesicles appear, which are special organs of reproduction. The analogy to a plant is maintained here also; we have already seen the development of a stem with buds, growing into twigs and branches; here we have the fruit-capsules bearing the germs of another generation.

Sometimes we find these organs few in number, seated here and there in the angle formed by the branches, or by the buds with the stalk. At other times they are very numerous, crowded together on the stalk, projecting in

regular succession in the same plane, which forms a right angle to the arrangement of the cells. Each of the capsules or vesicles is a tall, vase-like, transparent body, considerably larger than a cell, but closely resembling it, except that its summit is abruptly narrowed to a short rim, like a pitcher. One of these organs is represented in fig. *b*.

The common nutrient flesh permeates the capsule as it does a cell, and developes therein a very peculiar embryo. When somewhat matured, the permeating tube is seen swollen out into separate ovate sacs, ten or more in number, each of which contains several embryos. Those nearest the mouth of the vesicle are first developed, and escape successively, by slowly emerging from the pitcher-like rim. Fig. *c* represents a vesicle much magnified, with its included embryos in various degrees of maturity, and one in the act of escaping. The appearance of the tiny creature, when it finds itself at liberty, is most surprising and interesting, especially when, from a crowded forest of polypes, the embryos are escaping by thousands. Mr. Peach, who first observed them, thus describes the scene he saw. Having, on the 19th of February, placed a specimen of *Laomedea dichotoma* in a large glass of sea-water, he found, a day or two after, that the water appeared muddy, an appearance caused by myriads of moving objects, that resembled umbrellas without handles, or very wide and short hand-bells. "I took," says this agreeable observer, "a small quantity of the water, and placed it under the microscope, when thousands of the objects were sporting about in all directions, moving at a rapid rate by the ciliary appendages on their rim. All at once they would withdraw their cilia, and the handle-like appendage on the back, and become a mere speck; and after resting a short time they would again throw out their cilia and appendage, and round they went waltzing with each other. It was perfectly astonishing in this crowded

assembly to find that they very seldom came into collision; and if so, how soon matters were again accommodated. They continued active up to the 2d of March, when I lost them as if by magic. I fancied they might have been the young of worms; therefore, I took the *Laomedea*, washed it, took fresh sea-water and filtered it through three or four folds of fine linen, and placed the specimen in this: the next morning I had a still more innumerable host of these delightful things. They assume various positions, and when in the water they remind me of thousands of parachutes thrown from a balloon, descending in various states of expansion."

The writer of these papers has had an opportunity of confirming and extending the observations of Mr. Peach. It is easy to find the minute, sylph-like creatures, for all that is needful is to place in a vessel of sea-water a frond of sea-weed studded with the zoophyte, and in a few hours scores or hundreds will be seen, even with the naked eye, playing and dancing about in the most amusing manner. Fig. *d* represents the embryo, very highly magnified.

In structure the tiny animal, which, though just born of a stationary zoophyte, is now swimming at will in a sprightly manner through the free water, is evidently a Medusa; in all essential particulars being the very counterpart of one of those exquisitely delicate animals which Professor Forbes has so beautifully described and portrayed in his "Monograph of the British Naked-eyed Medusæ." It consists of an umbrella-shaped disk of translucent jelly, the diameter of which is about $\frac{1}{60}$th of an inch. Four vessels cross the disk at right angles, and from the centre of union there springs a fleshy peduncle, with a sort of neck, capable of many varied motions and many alterations of form. The margin of the disk carries twenty-four slender tentacles, exactly corresponding to those of the parent polype, and essentially to those of the Hydra; being studded

with warts, which analogy pronounces to be aggregations of barb-bearing capsules, instruments for arresting and killing prey. At the bases of the tentacles, arranged at certain definite points on the margin of the disk, are placed eight beautiful organs, which are doubtless the seats of a special sense. Each of these organs consists of a transparent globe, not enveloped in the substance of the disk, but so free as to appear barely in contact with it. In its interior is borne a smaller globule or lens, of high refractive power, placed a little towards the outer side. Almost every one, on first beholding these organs, would unhesitatingly pronounce them eyes, and so they are considered by some eminent physiologists. Others, however, consider them to bear a closer analogy to our organs of hearing; the crystalline globule (or *otolithe*) being, as it is stated, capable of vibration within its vesicle. Whatever they be, the same organs are found in the same form, in that class of animals just alluded to, the jelly-fishes or medusæ.

The disk is endowed with an energetic power of contraction, by which the margin is diminished, exactly like that of a medusa in swimming; and the tentacles have also the power of individual motion, though in general this is languid, their rapid flapping being the effect of the contraction and expansion of the disk just mentioned, producing a quick involution and evolution of the margin, and carrying the tentacles with it. Occasionally, however, all the tentacles are strongly brought together at their tips, with a twitching, grasping action, like that of fingers, which is certainly independent of the disk.

The phenomena, of which an example has been given in this paper, have almost as greatly startled the philosophers of our age, as those connected with the reproduction of the Hydra astonished our ancestors a century ago. As in the former case, they were disbelieved, denied, ridiculed, confirmed,

believed, wondered at, and at length have found a place among the recognised laws of organic life, as the Law of the Alternation of Generations. When we come to speak of the Medusæ as a class, we shall have occasion to revert to the topic again; for the present we may state, that the order described is found to prevail among many species and genera of the marine polypes. That order is briefly as follows:—The polype, a fixed and rooted animal, increases its own individual life for awhile by putting forth a succession of budding heads, but at a certain period gives birth to a number of beings that bear no resemblance to itself in form or habit, but are, to all intents and purposes, free swimming medusæ. Each of these, after pursuing its giddy course for a time, produces a number of eggs, which change into active animals having the closest resemblance to Infusoria. Each of these latter presently becomes stationary, and affixed to some foreign body, along which it creeps as a root-thread, shooting up tubular and celled polypes, as described in the early part of this paper.

It is evident that this is a very different thing from the metamorphosis which takes place in Insects and Crustacea, where it is but one individual passing through a succession of forms, by casting off a succession of garments that concealed, and, as it were, masked the ultimate form. The butterfly is actually contained within the caterpillar, and can be demonstrated there by a skilful anatomist. In this case, however, there are distinct births, producing in a definite order beings of two forms, the one never producing its image directly, but only with the interposition of a generation widely diverse from it. Hence, to use the striking though homely illustration of one of the first propounders of this law, any one individual is not at all like its mother or its daughter, but exactly resembles its grandmother or its granddaughter. P. H. G.

THE CHEQUE AND THE COUNTERFOIL.

A LESSON IN THE CHRISTIAN EVIDENCE.

Coming home a ship's company describes a remarkable scene which it has witnessed in the course of its wanderings. Discredited by some and believed by others, the deponents adhere to their statement with wonderful tenacity; nor can imprisonment and torture induce them to alter a single iota. After they are dead, and when all evidence is converging towards the truth of their story, many regret that they can no longer see and cross-question the original narrators. However, it turns out that in a public collection are sundry pictures containing an elaborate representation of the controverted incident, and believed to be the work of some of the spectators, or exact fac-similes from their originals. In settling the dispute, it is obvious that great interest will attach to these drawings, and it will be a matter of the utmost moment to ascertain their trustworthiness. Are they not modern forgeries? Do they contain no fatal incongruities? no anachronism in costume? no solecism in the landscape, or the objects which people it? and are they not flagrant copies the one from the other,—all four the same cunning fable in so many different disguises?

No, says the artist: they are not modern. They are as old as the time they profess. Their transmission is straightforward and abundantly established; and, even though there were no other proof, I know their antiquity from their style, and from the pigments and vehicles employed in their production.

No, say the physical geographer and the antiquary: they are true to the given time and place. That is the exact aspect of the country, and those are its characteristic

birds and flowers. And this is the dress of the period, and some of the personages introduced I can recognise as contemporaries, and very correctly represented they are.

No, says the critic: they do not copy one another. Some of them may have used pre-existing sketches, or they may have had access to certain materials in common. But they are all distinct and independent; and some of them, at least, have drawn from the life. They give traits and details which would never occur to any but an actual observer.

So says the scholar: The Gospels are as old as the commencement of the Christian era. For the professed antiquity of no books is the documentary evidence so abundant: but even though all manuscripts and versions were destroyed, their very speech bewrayeth them. Their language is the Greek of Galileans. After the first centuries that Hellenistic dialect ceased to be spoken by any people; and, after it became a dead language, to write in it such books as we now possess would have required a scholarship almost supernatural. We can have no more pictures the same as these; for the very pigment which makes them so peculiar has perished.

Yes, say the naturalist and the archæologist: they are true to the region they represent. The Gospels are still written on the face of Palestine. To return to your comparison,—they remind me of a picture where, in representing some remarkable coloured strata, that there might be no dispute as to the truth of the tinting, the artist had actually painted with specimens of the several rocks finely pounded. In these Hebrew sketches I recognise the very dust and stones of Zion; and I have no manner of doubt that they are the work of Jews anterior to the destruction of Jerusalem.

And asked to pronounce on these old pictures, how does the critic proceed?

Setting them side by side, he is first of all struck by the different style of all the four. Each artist has his own affinities,—an eye for something which another overlooks,—his own touch and impasto and finish. This first, with his careful draughtmanship and scientific exactitude, is a manifest systematist, and gives every object as a philosopher would see it. That other more eclectic, is withal more picturesque; and his pencil everywhere scatters the expressive minutiæ and the happy hits of the descriptive poet. In the masterly perspective, the wavy flow, and the skilful grouping of the third, you recognise the practised strokes and pleasing effects of the accomplished limner. Whilst in the flaming fragments of the fourth,—in the empyrean background, and in the warm air and summer joy of the nearer distances, as also in the divine animation with which the canvas heaves and palpitates, you perceive a soul which had life abundantly, and which labours to convey a glimpse of its own glorious vision, only grudging the imperfection of all material vehicles. Each is distinct and independent. Each could repeat himself in manifold variety; but not one of all the four could pass for his neighbour.

Laying the four Gospels alongside of one another, you observe the Hebrew instincts of St. Matthew. With heraldic accuracy the commencement of his narrative is a long genealogy, supremely interesting to a nation compared with whose youngest family our British Percies and Howards are men of yesterday. Then with a sort of black-letter fondness for precedent, or rather with a believing Israelite's reverence for prophetic Scripture, ever and anon he is repeating, "As it is written,"—"That it might be fulfilled which was spoken by the prophet." And in the large collection of parables, so pleasing to Eastern readers; in the recital of those miracles which especially attested the Messiahship of Jesus; and in the prominence given to incidents and discourses

which throw light on the "Root and Offspring of David," you discern the Hebrew of the Hebrews,—the Jewish historian, so systematic, so scriptural, so conscious of his country.

Almost as Western as Matthew is Eastern, Mark gives the Syriac *Abbas*, and *Ephphathas*, and *Talitha-cumis*, along with their translation; and "centurions," "speculators," "quadrantes," or farthings, are set down or explained just as they would have been by a Greek or Roman Jew returning to Palestine. But still more characteristic are his selection of striking incidents and the vivid precision of his picturesque language. The shortest of all the evangelists, he is nevertheless the most graphic; and his work may be compared to the cabinet picture of a true master of the old Netherlands school,—sharp in its outline, full without crowding, and clear in its lucid compactness. And like such a master, too, a touch will often add another feature; an expressive dot will light up a wide surface with new significance. It was "green grass" on which the multitude was made to sit down; it was at a "place where two ways met" that the colt would be found which the disciples were to bring to their Master; not only did a young ruler come to ask a question at Jesus, but he came "running and kneeling down;" not only was our Lord forty days in the wilderness, but He was "there with the wild beasts;" not only did He slumber in the tempest-tossed vessel, but He lay "in the hinder part of the ship asleep upon a pillow;" not only did He suffer the little children to come to Him, but He was "much displeased" with those who forbade them, "and He took them up in His arms, put His hand upon them, and blessed them."*

Then, with his elegant exordium, comes a fluent and skilful biographer, whose orderly sequence aids the memory, as much as his graceful periods charm the ear. Not pro-

* The Literary History of the New Testament. P. 41.

fessing to be autoptical, but claiming a "perfect understanding of all the incidents from the very first," from the materials which "eye-witnesses" supplied he has compiled a narrative continuous and lively, and worthy of an accomplished historian — though ever and anon professional allusions and the recurrence of medical terms remind us of "Luke, the beloved physician."

Need we — can we characterise the picture with which the series ends? Omitting every parable, and recording those miracles only in which the heart as well as the power of his Master was exhibited; detailing at length His conversations and His confidential addresses to His followers, as well as the various traits of majesty or tenderness which had most deeply impressed the narrator's own mind, from its transcendent commencement to its touching close, it is a mighty effort to perpetuate the grace and truth which came in Jesus Christ: whilst over the whole there hovers an atmosphere of "joyful solemnity"* and seraphic benevolence, itself sufficient to show that the author was once in contact with the Heavenly Original.

Such is the first inference which we draw from this comparison of the Four Gospels. They are not four productions of one biographer, but each is the work of a distinct individual. In other words, there are four evangelists as well as four Gospels. To say nothing of external evidence, but judging entirely from their intrinsic style and manner, especially when read in the original, these four memoirs are the work of *four separate biographers.*

Looking at them again, we are struck with their *circumstantial minuteness.* One canvas may be more crowded than another; but each of them contains, perhaps, a hundred heads, and many of them with very decided and definite features. Not only is the great central object carefully

* Da Costa.

depicted in all, but there is no tendency to slur over, in safe and shadowy vagueness, the subordinate and accessory figures. Each is given fresh and firm, and with the precision of those who had the original before them. Looking at these historic sketches, you instantly observe the copiousness of truth and the exactitude of personal information. Romancers lay the scene in a distant region or a departed time: the evangelists recount events happening in their own country and in their living day. And deceivers confine the story to their own immediate coterie, and take care to introduce no names which might be apt to resent the fraud and publish the imposition. But, strong in conscious truthfulness, the evangelists abound in dates, and in names of well-known persons and places. Jerusalem, and Jericho, and Nazareth, are introduced as freely as Capernaum or Bethsaida; men in public station, like Joseph of Arimathea and Nicodemus, and hostile personages, like Annas and Caiaphas, Pontius Pilate, the Herods and Herodias, are brought in with no more hesitation than Peter, and James, and John. Miracles do not happen to nameless people in unknown regions; but it is on the road from Jericho to Jerusalem, and on the eve of a memorable Passover, that Bartimeus, the blind beggar, the son of Timeus, is restored to sight; and it is at Bethany, a village two miles from the capital, that a few days afterwards Lazarus is recalled from the tomb. Everything is distinct and express; and having nothing to fear from contradiction, by multiplying incidents and by introducing well-known persons and places, they put it in the power of every contemporary to ascertain the truth of their testimony.

Surveying our pictures once more, we are finally struck with sundry *delicate and undesigned coincidences* between them; and when we say "delicate and undesigned," we purposely exclude those obvious and outstanding features,

which could scarcely elude the notice of even a copyist; but we refer to those little and recondite ingredients which can only occur in sketches direct from the original. For instance, in numbers One and Two this grey speck might pass for a stone or a sheep, and it is only when we refer to number Three that we find it is meant for a human figure. In a corner of one picture is what seems to be a single tree; in another, a lozenge of light opens through the trunk; and in a third sketch, the perforated bole resolves into two distinct trees planted near to one another. And as these remote agreements and recondite mutual illustrations successively arise to our earnest gaze, the conviction grows at last irresistible, that whatever they may have known of one another, there was a common original to which the artists were indebted alike for their variations and their concord. When we take up the evangelists, we are struck with that free and independent way in which each gives his version of events, as if secure that his statement will speak for itself, and no less confident in the veracity of his several colleagues. He shows no nervousness as to his reception. He makes no effort to soften down what is strange, or to give extra effect to what is surprising. He offers no explanation to make his narrative tally with some previous history, or to establish its own self-consistency. But, on the other hand, there is occasionally a seeming contradiction; a pretermission of particulars, or a condensation of incidents, or a peculiarity in the spectator's standing point, which gives the narrative all the air of a meaningless tale, or an entirely different story, till a careful comparison supplies the gap and completes the harmony.

For instance, in his account of the crucifixion, Matthew tells that "the soldiers smote Jesus with the palms of their hands, saying, Prophesy unto us, thou Christ, Who is he that smote thee?" And in this challenge there seems

nothing very difficult, and we could not have seen the force of the insult nor the meaning of the passage, had not another evangelist written down, "And *when they had blindfolded him*, they struck him on the face, saying, Prophesy; Who is it that smote thee?" (Luke, xxii. 64.*)

All the evangelists agree in telling, that when the high-priest's officers came out to arrest Jesus, Peter drew a sword, and smote off a servant's ear. And yet both Matthew and Mark agree in relating, that when Christ's persecutors sought all sorts of evidence against Him, so as to make out a case before the Roman governor, they could procure none. But is it not very strange, that when the high-priest had in his own palace such a striking proof of the violent character and dangerous designs of these Galileans, he should not have called as a witness his own wounded servant? Had we possessed no information beyond the narratives of Matthew and Mark, this would have been a flagrant difficulty. 'You say that the whole effort of the priests was to prejudice Pilate against Jesus, as a seditious and turbulent character; but they could substantiate nothing. Why was not this recent and conclusive witness forthcoming? Especially when Jesus said to Pilate, "My kingdom is not of this world; if my kingdom were of this world, *then would my servants fight*, that I should not be delivered to the Jews,"—why did none of his accusers reply, 'Yes, but your servants did fight, and one of them has inflicted a wound on the sacred person of the high-priest's servant?'' Now, had we possessed no gospels except these two, we could not have accounted for so strange an oversight on the part of the priestly faction.

* See the Rev. J. J. Blunt on "The Veracity of the Gospel, and Acts of the Apostles." In this work, and its companion volume on the Five Books of Moses, in the "Horæ Paulinæ" of Paley, and the Rev. T. R. Birks's ingenious Supplement, the reader will find these undesigned coincidences accumulated to an amount absolutely overwhelming.

But Luke mentions a circumstance which sufficiently explains it. From his account we find, that as soon as Peter smote off the ear *Jesus healed it again;* and by doing this He effectually disqualified the wounded servant from appearing as a witness against Him. The priests were in this dilemma. If next morning they produced the servant as a proof of the violence of Christ and His followers, how could Pilate credit them? That wound was never inflicted overnight, or it could not be cured so soon. Or if, to explain this latter circumstance, they acknowledged that Christ had instantaneously healed it, they would at once have trod on dangerous ground, and would have given Pilate another reason for suspecting — what he was already very apt to surmise — the superhuman character of his prisoner.

In Matthew (viii. 16) we read, that "when the even was come they brought unto him many that were possessed with devils, and he cast out the spirits with his word, and healed all that were sick." But why was it *evening* when they brought to Jesus those demoniacs and sick persons? From Mark (i. 21, 32), we find that it was the Sabbath-day; and from Luke (xiii. 14), we find that the Jews thought it sinful for "men to come and be healed on the Sabbath-day." But we also know that the Jewish Sabbath ceased at sunset; so that when the evening was come the people would feel no scruple in bringing their afflicted friends to Jesus to be healed. But observe how far we have to travel before we can complete Matthew's simple statement. He merely mentions that it was in the evening Jesus wrought these cures; and had we possessed Matthew's narrative alone, we might have laid no particular stress on the time of day. But we go on to Mark, and we find that it was the Sabbath evening, "when the sun was set." And we go on to Luke, and find, though in a totally different connexion, that these Jews would have thought it very *wicked to carry the sick* or to accept a cure on the Sabbath.

And it is just because the particulars are so minute that the coincidence is so valuable. They are just such trifles which a true historian is apt to omit, and just such trifles that a fabricator would never think of supplying. Or if we could imagine a forger systematically attempting to complete the omissions of his predecessor, he would not deposit his supplemental information in nooks and bye-paths, where ages might elapse before it was discovered; but he would exhibit his *addendum* in some conspicuous position, and would take care that it should arrest the reader's attention.

The more delicate these coincidences are the surer is the inference from them. If you were comparing a cheque with the cheque-book from which it was said to be taken, and found not only the cut portion to correspond with the counterfoil, but if on microscopic examination the torn corner finely coincided,—if you found its rough and ragged edge and each riven fibre to match exactly the surface from which it was said to be sundered, you could no longer doubt that the piece of paper in your hand had been taken from that book. And these delicate agreements of one evangelist with another show that their story is an extract from the Book of Truth,—a leaf from the volume of actual occurrences,—a derivation from a counterpart original. The evangelist John tells us (vi. 5), that on one occasion, when surrounded by a weary multitude, Jesus said, "Whence shall we buy bread, that these may eat?" And in putting this question he addressed himself to Philip. But John hints no reason why he should have put this inquiry to Philip rather than to any other apostle. Luke, however (ix. 10), mentions that the place was a desert near to Bethsaida; and John himself happens to have mentioned, in the opening of his gospel (i. 44), that Bethsaida was the city of Philip. And laying these three insulated passages together, we see how natural it was to put the question, "Where is bread to be bought?" to one acquainted with

the neighbourhood. Had we not possessed John's gospel, we should never have known that such a question was asked; and had we not possessed Luke's gospel, we should never have seen the special propriety of asking it at Philip.

We have chosen these examples because in them the truth of certain miracles happens to be implicated. If the coincidences now quoted be real and undesigned, then, not only are they an irresistible argument for the truth of the collective narrative, but they establish directly as facts the healing of Malchus's ear, the cure of many sick and demoniacs, and the miraculous feeding of the multitude with five loaves and two fishes,—for it is in the recital of these miracles that these coincidences, so truth-vouching, occur. And if, again, these miracles be true, then is Jesus all that He professed,—for it was in support of His claims as Messiah that He wrought these miracles.

But from the gospels we may transfer this test to other portions of the New Testament. We have there a book mainly occupied with the travels of St. Paul; and alongside of it we have thirteen epistles ascribed to the same apostle. Now, even supposing that the author of the Epistles and the author of the Acts were the same individual, it has been triumphantly shown, by a sort of microscopical survey, that nothing but scrupulous truth or omniscient falsehood could account for the complex and involute agreement which subsists between them. To detect these latent harmonies was perhaps the greatest service to historic Christianity which acumen and sound sense united have ever rendered; and though it is impossible to offer any abstract here, we may safely congratulate as proof against circumstantial evidence the sceptic who reads the "Horæ Paulinæ," and still doubts whether such a man as Paul existed, whether his epistles be genuine, and whether the Acts of the Apostles be true.

We have often visited the ruins of a famous castle, with which, no doubt, many of our readers are well acquainted. Long ago it was captured, and that it might never be a stronghold to the patriots of Germany again, the enemy burnt it and blew up the walls. But in the weedy foss is still shown a huge fragment of a tower, which, when exploded, alighted there; and in the goodly joining of its stones and the hardening of its ancient mortar such a rocky mass had it become, that when lifted from its base, instead of descending in a shower of rubbish, it came down superbly a tower still. And, like that massy keep, the books we have been considering are so knit together in their exquisite accuracy, the histories are so riveted to one another, and the epistles so mortised into the histories,—and the very substance of epistles and histories alike is so penetrated by that cement of all-pervasive reality, that the whole now forms an indissoluble concrete. And though all coeval literature had perished,—though all the external confirmations were destroyed,—though all the monuments of antiquity were annihilated, strong in its intrinsic truthfulness, the New Testament would still hold its lofty place—a tower of self-sustaining integrity. And though the efforts of enmity were to succeed as they have signally failed,—though learned hostility were to undermine its documentary foundations, and blow up that evidence of manuscripts and early versions on which it securely reposes, so finely do its facts fit into one another, so strongly are its several portions clamped together, and in the penetration and interfusion through all its parts of its ultimate inspiring Authorship, into such a homogeneous structure has it consolidated, that it would come down again on its own basis, shifted, but nowise shattered. Such a book has God made the Bible, that, whatever theories wax popular, or whatever systems explode, "the Scripture cannot be broken." J. H.

MY BROTHER'S KEEPER.

CHAPTER V.

The yule-clog sparkled keen with frost,
No wing of wind the region swept,
But over all things brooding slept
The quiet sense of something lost.—TENNYSON.

THE setting sun shone fairly upon the last day of December; and as his disk sank lower and lower behind the city, chimneys and dormant windows and now and then a towering story, glowed in the clear red light with singular brightness. The sadder for that. So very fair, and yet the end!—the end of the day, the end of the year. The last time the sun might shine upon 1812!—Cold and still the night set in; and the quiet stars in whose watch the new year should begin its reign, looked down with bright eyes upon the subsiding city and its kindling lights.

Rosalie stood watching it all,—watching the people as they hurried home, the parlour windows lit up, the bright doorways that appeared and vanished, the happy groups gathering at tea. She could see them across the way,—those fair shadows, young and old, moving about in the bright glow. And in the next house—and the next,—up and down, as far as she could see;—it was one line of telegraphing. Nor did the few windows where only firelight shone, flickering like the joy of human life, look less cheerful. She remembered the long talks, the sweet counsel given in that dusky light,—the eyes that had looked down

upon her like heaven's own stars; but now the room was not darker than her heart.

It was not the first time she had stood there watching for her brother,—she had looked till each frequenter of that street was perfectly well known. It was not the first time she had watched in sadness. But she remembered that there had been a time when she was never suffered to watch there long—when a gentle hand would be passed round her waist, and she be drawn away from the window, with,

'We may not overrule these things, daughter—we must not be children in whom is no faith. Come and let us talk of the time when God shall wipe away all tears from our eyes.'

Pressing her hand upon her heart, Rosalie turned hastily from the window.

The fire gleamed faintly upon Hulda's little face and figure, stretched upon the sofa in the perfect rest of childhood; and above that one bright spot in the room, hung a picture that gave depth to all the shadows. Rosalie ventured but one glance at it, and kneeling down at her mother's chair, she laid her face on the cushion with a bitter weariness of heart that found poor relief in tears. Yet they were a relief; and after a while her mind lay quiet upon those words, "God is our refuge and strength: a very present help in trouble."

A soft touch on her neck aroused her, and with an almost bewildered start Rosalie looked up; but it was neither angel nor spirit'—it was only little Hulda.

'Are you sick, Alie?' asked the child.

'No love. Are you awake?'

'O yes,' said Hulda laughing and wrapping her arms round Rosalie's neck,—'don't that feel awake? Aren't we going to have tea, Alie?'

'I shall wait for Thornton, but you shall have yours, dear;' and getting up with the child in her arms, Rosalie carried her into the tea-room, and fell back into her own quiet performance of duties.

Hulda was in quite high spirits for her, and ate her supper on Rosalie's lap with great relish,—a relish partly derived from returning health, and partly from this first coming down stairs.

'I wonder if Thornton hasn't gone to buy me a present!' she said. 'You know it's Newyear's eve, Rosalie, and you must hang up my stocking.'

'There is no fear of my forgetting that,' said her sister.

'No, for you never forget anything. But I wonder what'll be in it! Well, we'll see.'

'Yes, we shall see. So put your arms round my neck, Hulda, and I will carry you upstairs. It is pleasanter there than here to-night.'

But the musing fit was strong upon her; and later in the evening, when her little charge was asleep, Rosalie's mind could do nothing but wander in a wilderness of recollections. Not a wilderness in one sense,—how fresh, how sweet, they were!—and yet too much like a sweet land breeze from the coast that one has left.

Rosalie took out the stocking as Hulda had desired, and put together on a chair at the head of the bed all the various trifles that were to fill it; but when she had placed herself on a low seat before them, the stocking hung unregarded from her hand, and her thoughts flew away. There seemed a long vista opened before her; and furthest of all its objects—yet clear, distinct, even more so than those near by—she saw herself as a little child; before her eye had learned to know the evil that is in the world, or her heart had grown up to feel it. What a stream of sunshine lay there!—

" The sunshine and the merriment,
" The unsought, evergreen content,
" Of that never cold time,
" The joy, that, like a clear breeze, went
" Through and through the old time!"

And even in later times, where the shadow of life had begun to fall, the picture seemed hardly less fair. For about both, the child and the half-grown girl, had been wrapped the same atmosphere of love and guidance,—through which sweet medium all the breaths of sorrow and pain came softened. Even when they came from bitter causes—her father's death; her brother's gradual estrangement from home—his voluntary withdrawing from the hand in hand intercourse in which they had grown up,—even then there was sunshine at her mother's side—sunshine for her,—she had never failed to find it. But it reached not to the dark foreground,—where scorched flowers and blackened stumps shewed that Time had claimed the land, and had cleared it.

But little more than one year ago, Rosalie was nerving herself for the bitter future. It had come, and she had met it,—had lived through those first few months of grief not to be told nor thought of. But though her heart was quieter now, there were times which seemed to surpass all she had ever known for intensity of sorrow,—when her very life seemed to die within her; and desire to live and power to do could not be found. When her mind dwelt with intense longing on the words, "I shall go to her but she shall not return to me." Yet even then God had not forgotten his child, and in the breaking light her mind rested submissively upon this other text—"All the days of my appointed time will I wait, till my change come." And as the last storm-clouds roll away, and are gilt with the western *light*; so upon all her sorrow fell this assurance, "Blessed

are the dead that die in the Lord—they rest from their labours and their works do follow them."

"I do set my bow in the cloud, and it shall be for a token of the covenant between me and the earth!"

Rosalie had dwelt long upon the words, till all thought for herself was lost in joy for her mother's safety and assured blessedness, far from the weariness that pressed upon her own heart; and though the remembrance brought back one or two tears, they were quickly wiped away, and her whole soul was poured out in the prayer that she might one day 'go to her,'—and not only she, but the two dear ones yet left to her on earth. The desire could not be spoken—it was the very uplifting of the heart,—for them, for herself; and that she might faithfully perform the work that was put into her hands.

With a look where sorrow and submission and earnest purpose and endeavour, were like the pencilling upon a flower of most delicate growth and substance; Rosalie raised her head, and saw Thornton before her. Leaning against the bedpost, with his arms folded, and eyeing her gravely and considerately.

'What are you thinking of me for, Rosalie?' he said. 'Cannot you do enough of that work in the daytime, that you must spend half the night upon it?'

'Are you sure that I have?'

'If I had not been sure of it I should have claimed your attention when I first came in.'

'And it would have been gladly given.'

'Yes, I dare say,' said Thornton, 'but one may as well take the benefit of all that good angels are amind to do for one. I am almost sorry I did not, though. What have you got there? stockings to darn?'

'Only Hulda's stocking to fill with presents—you know it is Newyear's eve.'

'Give me credit for remembering something once in the course of my life. I did recollect that there was a stocking to fill, and have brought home my quota.'

'I am so very glad!' said his sister, with a look of great pleasure. 'Hulda would have been disappointed if you had forgotten her.'

'She don't owe me many thanks,' said Thornton, as he watched the fingers that were busy disposing of the presents, and the face that bent over them. 'I believe she might have escaped my memory if her sweet guardian could have gone with her. But Hulda's presents were to pass through your hands — No — don't kiss me, — I tell you I don't deserve it. When you looked up a little while ago, I felt as if you were up in the sky, and I — I don't quite know where, — so I'll wait till we both get back to terra-firma again.'

'Do you call me her guardian?' said Rosalie with one look at him.

'Yes, and mine too. Why didn't you have tea to-night? Well — you look — Want to know how I found it out? — because the table was untouched. Why didn't you?'

'O — I thought I would wait for you,' said she brightly.

'But why did you, after all? Don't you know I'm not worth the trouble?'

'O Thornton!' she said.

'What?'

'I was not going to say anything.'

'Your saying nothing usually tells all one wants to know, and a little more. Come, finish your work, — I shall play guardian to-night, and make you go down and eat as many oysters as an angel can reasonably be supposed to want. So make haste, for it is time such particular little bodies as you were in bed.'

He had named her right — she was indeed his guardian angel.

In the midst of all his reckless absence and waste of time, in his gayest hours of pleasure, among his so-called best friends, there was still in his inmost heart the pure image of *one* Christian, whose profession he *knew* was not a name,—whose walk he knew was consistent; whose life he knew was gladly submitted to a higher will than her own. And often did that image come up before him, rebuking the light irreverent talk of his companions, making false their assertions, and reproving him for even listening and looking on. His mother had indeed won his respect no less; but she was older—it seemed more natural, to his notion, that Christianity and years should come together. But his sister—young like himself—younger than he,—beautiful, admired, complimented; and yet maintaining that pure elevation of heart and mind—that uncorrupted, untainted simplicity of aim, which not all his most unbelieving desires could find in those who were living without God in the world:—it vexed him sometimes, and sometimes it roused his pride and sometimes his discontent,—yet on the whole it pleased him. There was a strange kind of fascination in seeing one who ought naturally to look up to him for counsel and strength, assume, almost unconsciously, so high a stand above him; and array herself not more gently than firmly against so much that he liked and followed. And though he often laughed at her, sometimes stopped her mouth with a kiss, and sometimes got excessively provoked,—if he could have thought her one whit more tolerant of the things which he tolerated, one jot more indulgent towards the company and the pursuits in which he wasted his life—Thornton would have felt that the best thing he had in the world was gone from him. He watched her—she little thought with what jealous eyes; and at every instance of her unwavering truth—not only in word, but in that up-

rightness of heart which pierces through error and fallacy like a sunbeam—he smiled to himself; or rather to the best part of his nature against the worst. And yet upon those very points he would argue and dispute with her till he was tired. But this consciousness of her secret influence made him the more shy of submitting to it openly. He was content to go on after the old fashion; thinking Rosalie a piece of perfection, and not much concerning himself whether she were a *happy* piece of perfection or no.

CHAPTER VI.

Here she was wont to go! and here! and here!
BEN JONSON.

LITTLE Hulda had slept away all the early part of the Newyear's morning; and it was not till after the rest of the family had long ago breakfasted, that she sat up in bed and looked about for her stocking. For the doctor gave leave that she should go down stairs in the afternoon, only upon the easy condition of her keeping perfectly quiet all the morning; and now, bundled up in dressing-gown and shawls, she sat leaning on Rosalie and supported by her arms, to examine into the mysteries that had hung all night at the head of her bed. She was weak and pale still, and the touch of helplessness which illness had given her voice and manner went to her sister's heart. When Hulda was well and playing about, recollections came less readily; but now the season of itself brought enough—the filling of that stocking had been bitter work,—and when from time to time Hulda's gentle and still weary-looking eyes were raised

to her sister's face with a smile of pleasure, or her lips put up to receive a kiss; or her little thin hands were clasped round Rosalie's neck, while the childish voice spoke its thanks with such an earnest yet subdued tone,—Rosalie heard again that truth which she never could forget—they were both motherless. Not Hulda in effect—her whole love and dependence had been transferred; and she clung to her sister with a trust that perhaps was the strongest she had ever felt, for it was undivided. But Rosalie—she could love no one now as Hulda loved her,—she had no one to look up to—no one to fall back upon in those times of weakness and weariness that stir the strongest resolution. No one on earth; and though smile and word and kiss came at Hulda's bidding, her heart yearned for a more far-seeing sympathy,—her head longed to lay itself down and rest, even as Hulda's was resting then. Bitterly she remembered that she was alone, and for a few minutes her mind bent down as before a tempest. And then, drawn like Æolian music from the very breath that made the whirlwind, came the words,

"*My presence shall go with thee, and I will give thee rest.*"

'"The rest that remaineth"—she thought with swimming eyes; 'for surely our heaven lieth not here-away.'

'Hulda dear,' she said presently, bending down to look at the languid eyelids that could hardly be kept open, 'you are very tired. You must lie down and sleep again, and then by and by you shall be dressed and go down stairs.'

'But *you* ought to be dressed,' said the child rousing herself a little,—'you won't be ready to see people.'

'I am not going to see anybody, love.'

'You needn't mind about me,' said Hulda, 'I'm so well now. And Martha could stay here.'

'Martha could not,' said her sister as she laid her on the bed, 'for I mean to have that pleasure myself.'

'O that's very good,' said Hulda, closing her eyes with a satisfied air; 'only it's a pity the people should be disappointed.'

And so Hulda fell asleep and Rosalie stood watching her; and the Newyear's sun mounted higher and higher in the clear sky; but 'under the sun' there was nothing new. Unless perhaps the hopes and resolutions,—and they were but the tying of an old cord many times broken. It was Newyear's day in name, but it was Oldyear in reality. The same bright points—the same dark corners,—the same strife of human passions and weariness of human hearts,—the same trembling of the scales of that never-poised balance of society. There was more leisure taken, and more pleasure undertaken, than on ordinary days; but among all the host of pleasure-seekers that now began to spot the streets, the beggar's hand was still held out; the doctor's gig went its rounds; and friends looked their last, that Newyear's morning, at the faces of those to whom the new year had not come.

"Is there anything whereof it may be said, See, this is new?"

"Behold, I create new heavens and a new earth; *and the former shall not be remembered, nor come into mind.*"

'Even sorrow shall be forgotten then,' Rosalie thought, as she stood watching little Hulda.

'Happy Newyear and good morning!' cried a bright voice, while the door was pushed gently open. 'How dost thou, fair Rosalie?—fairest of all cousins whether real or adopted. Here am I just arrived in time to dress for visiters, and that being done, I forthwith turn visiter myself. My dear, your cheeks are as soft as ever, and your eyes as

grave; and your mouth — well I won't detail that combination.'

'How pleasant it is to see you!' said Rosalie; as the young lady after a variety of salutations, held her back within gazing distance.

'How pleasant it is to see you, — which proves me of a disposition neither envious nor jealous. What have you done to yourself, child?—or have I been looking at the dark side of human nature till my eyes are contracted, and cannot bear the light?'

'Nothing has contracted your eyes since I saw them last,' said Rosalie smiling. 'I am in some doubt as to your judgment. Did you come here bareheaded in this weather?'

'Had to, my dear, because of my hair — there wouldn't be time to dress it again when I get home, you know. O I rode of course,—rumbled through the streets to the envy —or admiration—of all the gentlemen on foot.'

'No doubt! But would their admiration keep you from taking cold?'

'O yes — perfectly, — giddy heads never take cold, — you might as well talk of champagne's freezing. Some one of my elderly friends is at this moment detailing to mamma — 'My dear madam, I saw Miss Arnet this morning in a most dangerous situation.' — Nevertheless here I am, safe. This child is better I hear. And how are you, Alie?'

'Well.'

'Well? you don't look it. I saw Thornton in Broadway with his troop—where was he going?'

'To have a salute fired for the Macedonian, I believe,' said Rosalie. 'A message came for him in all haste to say that she was just coming in.'

'O that Macedonian!' cried the young lady, — 'there never was anything like it! You know they had a great

naval ball at Washington for Captain Stewart and the rest; and I was there of course, and everybody else. And the room was dressed out with all manner of sea things — I should rather say sea-faring things—and with the colours of the Alert and the Guerriere on the walls. The city was illuminated too, that evening, because of the victory; and everybody was in the best possible spirits. Well about nine o'clock there was a stir in the room—we could not tell what about at first, — only the gentlemen began to rush down in the most extraordinary manner, and the ladies stood still and looked. Then suddenly came the most tremendous cheering outside the house! — one stream of cheers, that seemed to have no end; and word came up that Lieutenant Hamilton had just arrived with the Macedonian's colours! — it excites me even now to think of it.' She drew a long breath and went on.

'They all came back in a body presently, bringing Mr. Hamilton with them; for all his family were there at the ball. And then Captain Stewart and Captain Hull and some others, brought in the flag, — with such shouts and hurrahs and waving of handkerchiefs—and 'Hail Columbia' from the band. And then at supper they toasted Commodore Decatur and his officers and crew, with ten times ten, it seemed to me — instead of three times three. My dear, you never heard people shout as we did.'

'You among the rest?' said Rosalie smiling.

'I don't know — I'm sure I cried. And vos beaux yeux are sparkling even at my poor account. There go the guns!'

They both started up and stood listening; and while all the bells of the city rang out their gladness, the guns at the Battery gave a response for the old Thirteen—a pledge that not one of them should be wanting in the contest.

'The bells will ring for an hour yet,' said Marion as the last report died away, 'so you may as well sit down and listen at your leisure. Poor Mary Laton! how can she bear all this. Her oldest son was killed in the engagement. Well, I must go. How lovely you look, child!—these guns have put colour in your cheeks,—try and keep it for your visiters—O no, you will not see them. Poor child!—and dear child, and every kind of a child that ever was well beloved, goodbye.' And giving Rosalie a half dozen kisses Miss Arnet quitted the room.

When little Hulda next awoke she found Martha keeping watch at her bedside.

Not indeed keeping watch of her,—for Martha's eyes were intent upon four long shining knitting-needles that were kicking about at a great rate; while below them depended a short worsted cylinder of clouded blue yarn.

'What *are* you doing, Martha?' said Hulda.

'Massy! child, how you scaret me! and made me drop a stitch into the bargain. Why I'm a knittin'—didn't you never see nobody knit afore?'

'O yes, but not such a looking thing as that,' said Hulda disapprovingly. 'What is it?'

'It's a firstrate lookin' thing, I can tell you,' said Martha,—'firstrate feelin' too. It's a mitten.'

'What's a mitten?' said Hulda, who being a young lady convalescent and at leisure, was well disposed to ask questions.

'Don't you know?—them things people wears on their hands. It aint a glove, but it kivers a person's hand just as well—some folks thinks better.'

'O I know now,' said Hulda—'it's like a little bag with a thumb to it.'

'Well I s'pose it does look considerable like that,' said Martha knitting away with renewed energy.

'Only a bag is shut up at one end'—said Hulda doubtfully.

'A thing can't be finished till it's done,' said Martha sententiously.

Hulda looked on for a while in silence.

'Is that little hole for the thumb to come out of?'

'For nothing else,' said Martha.

'But who are they for?' said Hulda,—'that is too big for you.'

'La sakes, Hulda, you aint waked up, be you? I guess it 'll be some time afore I want mittens to sew in. These is for the militie.'

'The militia!' said Hulda. 'Why they don't want mittens.'

'Don't they though?—then you know more about it than Tom Skiddy, for he says his hands gets awful cold sometimes, mornings. And you see, Hulda, the paper says the ladies up to Newburgh and Hudson and all along shore there, has been knittin' their fingers off; and sent I do' know how many pairs of socks and mittens—six hundred I guess, more or less—up to the Governor for the militie; and there was printed thanks to 'em in the paper,—so I don't see why folks here mustn't do nothing.'

'O yes, Rosalie told me about that,' said Hulda. 'But she said those were for the soldiers away off—somewhere where it's very cold.'

''Taint cold here, I s'pose,' said Martha,—'we don't have to make fires in *these* parts.'

'But it isn't so cold as some other places.'

'La child, so long's fingers gets froze, it don't make much odds about the theometer. And fingers *can* get froze in this town o' York—Tom Skiddy says so.'

'You like Tom Skiddy very much, don't you?' said Hulda.

'He aint so bad he couldn't be worse,' replied Martha, when her head had taken two or three turns as if her mind were balancing as well.

'But isn't he very good to you?' pursued Hulda.

'Good to me!' said Martha with a gyration of more dignity, — 'he aint got *quite* so far as that yet. Once in a while I'm good to him, — and he's pretty good to himself. That's about the state of the case. Only I may as well give the mittens to the first militie-man that comes handy; instead of sending 'em off to nobody knows who, nor whether they'd fit.'

Hulda looked on again thoughtfully.

'Thornton don't wear mittens,' she said.

'I can't see why poor folks should lose their fingers because the Capting buys yaller gloves,' said Martha. And inspired by the freezing fingers hers flew the faster.

'How very quick you knit!' said Hulda.

'Don't I, though!' said Martha — 'as quick as most folks. I always was spry. And you see, Hulda, I'll put blue and white fringe to the top; and the way they 'll keep Tom Skiddy's fingers warm, 'll be a caution.'

(*To be continued.*)

THE STORY OF GREAT HISTORIES.

RALEIGH'S HISTORY OF THE WORLD.

One of the most splendid personages in the court of Elizabeth was Sir Walter Raleigh. Well born, from his youth upward at home among the fair and the noble, with that exuberance of life which exhibited itself equally in an appetite for knowledge and an eagerness for action, and with that happy adjustment betwixt a brilliant imagination and a handsome figure, which gave a poetic charm to his movements and a matchless felicity to his repartees, he was in the camp an Apollo, and amongst carpet knights a Mars. Not so chivalrous, because not so unselfish, as Sir Philip Sidney, he was no less accomplished; and if never so high in the favour of his sovereign as Burleigh, Essex, and Cecil, he was quite as acute and much more ambidexter than any of these far-seeing favourites. A gay trifler in the saloon, but "toiling terribly" in his study; as able to navigate a ship as to build it, and as ready to encounter the Spanish Armada as to explore the enchanted coasts of Guiana; the companion by turns of statesmen and buffoons, and equally respected by reverend pedants and roistering buccaneers; at once a gallant and a sage, this most versatile and many-sided man had the merit of bursting the scholastic fetters of the period and sketching a design which was at last realised in the Royal Society, whilst he doubtless was equally entitled to Spenser's dedication of the "Faery Queene:"—

> "To thee, that art the summer's nightingale,
> Thy sovereign goddess's most dear delight,
> . . . . . .
> In whose high thoughts Pleasure hath built her bow'r,
> And dainty Love learn'd sweetly to indite."

At fifty-one years of age Sir Walter found himself under sentence of death, a prisoner in the Tower of London. From day to day the execution of this unrighteous decree was deferred, till he got inured to his position and came to be very much in the predicament of a man who is apprised that his malady is mortal, but whose sensations are those of perfect soundness. His busy mind could not rest; and shut out from explorations and adventures, he amused himself with experiments in science. In the garden was a little building where the lieutenant of the Tower had once kept his poultry. It was put at the disposal of the captive, and he converted it into a laboratory, and in this "hen-house" a contemporary describes him as passing the entire day in "distillations." However, Raleigh was not destined to forestall the discoveries of Boyle; and the chief result of his chemical researches was a cordial which went by his name, and which long held its place in the materia medica.

A considerable library might be formed by collecting the books which have been written in captivity or exile. Beginning, perhaps, with the "Tristia" of Ovid, and including compositions as sacred as the Apocalypse and many of the Epistles of St. Paul, it would be rich in more recent poetry and theology. But in its modern era the master-pieces of this prison literature would be Grotius "On the Truth of the Christian Religion," the "Pilgrim's Progress," and Raleigh's "History of the World."

Happily for himself Sir Walter had never been the mere fighting animal which constituted the warrior of those days, and his detestation of deep drinking preserved his faculties clear and unclouded. In his journeys and voyages, he usually carried with him a great box of books; and with his powerful constitution and with a brain free from obfuscation, he could overtake long spells of study in those intervals when coarser comrades lay soaked in tipsy slumber.

And now, in the thirteen dreary years to which his durance extended, the folios which had so often enlivened the bower and the cabin walked into the cell of the captive and did their utmost to cheer him; and in the pleasant gossip of Plutarch and the careful details of Polybius, in the caustic wisdom of Tacitus and the vivid narrations of guileless old Herodotus, the solitary student grew the best informed of Englishmen.

In such circumstances most men would have been content to beguile the hours and would have thanked the volume which helped them to forget. But Raleigh's mind, ever active and forth-going, could not rest in simple contemplation; and his accumulating knowledge sought outlet in a book. The work of which he formed the bold conception was a History of the World. And when it is remembered that the English language then contained hardly a single specimen of historical composition, and that the author had nearly reached his grand climacteric before his first instalment issued from the press, we must allow that not the least heroic achievement of the stout Elizabethan knight was the book which he thus projected and carried forward at the foot of the scaffold.

The first folio was published in 1614. It brings down the mighty tale from the Creation to the Roman Conquest of Macedon; and, notwithstanding its numerous digressions and the disproportionate space in the earlier portion devoted to rabbinical speculations, it is one of the stateliest fragments in existence. Very different from those subsequent compilations which go by the name of "Universal Histories," and which for the most part are a meagre sketch of separate nationalities, it attempts to survey the fortunes of mankind, and to recite, so far as it can be recalled, the story of the universe. Bringing together the more salient incidents in the rise and progress of every race, and viewing them in

relation to one another and to the designs of God, it forms a panopticon of which all the parts have a pervasive unity, whilst the bright relief and the shadowy depths are rendered fully effective by the light admitted from above; for, as ought to be the case in a History of the World, the artist takes Revelation as his standing-point, and the religiousness of his tone is in happiest keeping with the vastness and grandeur of his subject.

Ponderous as it is, that great volume would, even now, repay perusal. The first half certainly contains a geat deal which is not history. But even amidst its Talmudical *débris* and obsolete speculation, a careful search will gather many gems, sententious aphorisms, statesman-like reflections, and fine scintillations of fancy. Nor would it be easy to find more delightful occupation for the long leisure of a winter evening, or for the beguilement of a seaside sojourn, than the books devoted to Greece, Carthage, and Rome. In a letter to his son, Cromwell says, "Take heede of an vnactiue vaine spirit, recreate yourselfe with Sir Walter Raughleyes historie, its a bodye of historie, and will add much more to your vnderstandinge than fragments of storye."* In its spirit and purport the advice was worthy of the masterly and strong-minded writer; and it would be well for the rising race were the time which is often frittered away on "fragments of story," devoted to some great "body of history." An hour spent on the dome of St. Paul's on a summer morning will give a better idea of London localities and the surrounding geography than can be got by climbing many steeples; and a month devoted to Guizot or Hallam, Neander or Gibbon, or any comprehensive and far-ranging historian, will do more to expand the

* Judging by its price in the market, the above is a "golden opinion." The original autograph, dated Carrick, April 2, 1650, was sold last October for 27*l.* 6*s.*

faculties, and to make a man at home in the world now existing, than a lifetime expended on isolated tales and individual biographies.

A good narrative flows like a river; and to appreciate its beauties the best plan is to embark and drop down the stream. Few histories have more variety, animation, and grandeur than Sir Walter Raleigh's; and although the brink is often skirted by weeping willows, or shaded by sombre pines, ever and anon it rolls through smiling savannahs, or spreads out into lake-like expanses, where the meditative voyager has no reluctance to linger. Although it can give no idea of the gliding current and stately reaches of the main discourse, the closing paragraph may be quoted as a specimen of the author's eloquence, and of the pensiveness with which it is usually shaded :—

"By this which we have already set down, is seen the beginning and end of the three first Monarchies of the World; whereof the founders and erectors thought that they could never have ended. That of Rome, which made the fourth, was also at this time almost at the highest. We have left it flourishing in the middle of the field, having rooted up or cut down all that kept it from the eyes and admiration of the world. But, after some continuance, it shall begin to lose the beauty it had; the storms of ambition shall beat her great boughs and branches one against another; her leaves shall fall off, her limbs wither, and a rabble of barbarous nations enter the field and cut her down.

"Since the fall of the Roman empire, there hath been no state fearful in the East, but that of the Turk; nor in the West any prince that hath spread his wings far over his nest, but the Spaniard; who since the time that Ferdinand expelled the Moors out of Granada, have made many attempts to make themselves masters of all Europe. And it is true that, by the treasures of both Indies, and by the many kingdoms which they possess in Europe, they are at this day the most powerful. . . . These two nations, I say, are at this day the most eminent, and to be regarded; the one seeking to root out the Christian religion altogether, the other the truth and sincere profession thereof; the one to join all Europe to Asia, the other the rest of all Europe to Spain.

"For the rest, if we seek a reason of the succession and continuance

of this boundless ambition in mortal men, we may add to that which hath been already said,—that the kings and princes of the world have always laid before them the actions, but not the ends, of those great ones which preceded them. They are always transported with the glory of the one, but they never mind the misery of the other till they find the experience in themselves. They neglect the advice of God while they enjoy life, or hope of it, but they follow the counsel of Death upon the first approach.

. . . . It was Death which, opening the conscience of Charles the Fifth, made him enjoin his son Philip to restore Navarre; and King Francis the First, of France, to command that justice should be done upon the murderers of the Protestants in Merindol and Cabrieres, which till then be neglected. It is, therefore, Death alone that can suddenly make man to know himself. He tells the proud and insolent that they are but abjects, and humbles them at the instant. He takes account of the rich, and proves him a beggar. He holds a glass before the eyes of the most beautiful, and makes them see therein their deformity and rottenness, and they acknowledge it.

"Oh, eloquent, just, and mighty Death! whom none could advise, thou hast persuaded; what none have dared, thou hast done; and whom all have flattered, thou only hast cast out of the world and despised. Thou hast drawn together all the far-stretched greatness, all the pride, cruelty, and ambition of man, and covered it all over with these two narrow words, *Hic jacet.*"

Raleigh contemplated a second and third volume, and it is believed that he had gone far to complete his design; but there is now no trace of the manuscript. A victim of the little-mindedness of James I., he perished on the scaffold Oct. 29, 1618, four years after the publication of the first volume of his history.

ON THE POPULATIONS OF THE RUSSIAN EMPIRE.

No. III.

THE KOSAK, CAUCASIAN, SIBERIAN, AND NORTH AMERICAN POPULATIONS.

The Kosaks.—Kosak is a Tartar word,—a word originally foreign to the Russian language, but now more Russian than Tartar. However, if we look to the vast Steppes of Independent Tartary, we shall find that one of its populations are the Kirghis *Kosaks;* and these are as little Russian, and as much Turk, as are the Osmanlis themselves. The primitive meaning of the word is said to be *horse-man;* then *robber;* then *light-cavalry-man;* such as are the Kosaks of the present time.

Wherever there is a dangerous frontier there are Kosaks to guard it, so that they are like the *Marchmen* or *Borderers* of old; settlers on a given tract of country with certain duties to fulfil—with the charge of keeping watch and ward against the frontagers. Thus, there are Kosaks in Siberia, and Kosaks at the foot of Caucasus—the one as guard against the Tartars, Mongols, and Chinese; the others, as a thorn in the side of the Circassians, Tshetshentsh, and Lesgians. These are the Kosaks of the Black Sea, and of the Kuban; the men whose hand is against Shamyl, and against whom Shamyl raises his hand. They are the Kosaks on, what we may call, *active service.*

This is not the case with all of them. Where the frontier is peaceable, they have nothing to do, but to make the most of their privileges—the free distillation of brandy

being one of them. A Kosak, for instance, on the Chinese frontier has an easy time of it. Then there are the Don Kosaks. These live easier still—for the frontier has advanced beyond them, and their *March* or *Border* gives them as little to do as does the Scottish Border of the nineteenth century to the descendants of the Percies and the Howards. Compared with the men on the Kuban and Terek, they are as militia-men to soldiers of the line; and the Kosaks of the Caucasus respect them accordingly. But they have been a famous generation in their day, *i. e.* when Astrakhan was a powerful Empire, and the Crimea an independent Khanate.

More famous still were the Kosaks of the Ukraine (*Ukraine* meaning *March* or *Border*)—the *Zaporogians* as they were called, from living beyond (*Za*) the waterfalls (*porog*) of the Dnieper. It was the Poles that kept *their* swords so sharp—the Poles on one side and the Turks of the Crimea on the others. It was these, too, who most especially magnified the word Kosak as a name of fear. It need not now, we are told by the best judges, sound formidable. Except where the chronic warfare of the Caucasian frontier has kept him in exercise, the Kosak has grown degenerate—drunken, dull, deficient in physical force, and, on the strength of his privileges being curtailed, in some cases, discontented.

The Kosaks lead us to—

The Caucasians, partly reduced, partly independent; and *western*, *northern*, and *southern*, as the case may be; *northern* on the drainage of the Kuban and Terek, *southern* on that of the Kur.

Western (*north*-western) Caucasus is represented by Circassia; *Eastern* by Lesgistan, or the country of the Lesgians, with whom we must take the Tshetshentsh, or Mizhjeji tribes; differing in language, but allied in the

spirit of political independence. *Southern* Caucasus means Georgia.

Each of these divisions is, more or less, natural, *e.g.* the Georgians are Christians, the Lesgians, Tshetshentsh (or Mizhjeji), are Mahometans.

Georgians. — The Georgian occupies the fertile and lovely valley of the Kur, being a builder of towns, and a cultivator of the soil, a man enervated by an imperfect civilisation rather than hardened by the mountaineer habits of a semi-savage. Georgia, however, has long been a Christian country, though its Church is one of the neglected ones. It is an offset from the Armenian, itself of Syrian foundation. From Armenia, along with their Christianity, the Georgians took their alphabet; modified, however, in respect to the form of its letters. There are two sorts of writing in it — the old or ecclesiastic, and the modern. In the former the outline of the letters is angular, and their likeness to the Armenian transparently evident; in the latter all these angles are rounded off and the whole character of the original mode of writing disguised, or transformed. Were it not for the order of the letters being the same, and their names similar, the relation of the Georgian to the Armenian would be problematical. As it is, however, the two can be connected—the former being deduced from the latter.

Georgia was ever the battle-field between Persia and Turkey — the cock-pit (so to say) of Caucasus. The struggles which it witnessed harassed the people of the country. So did the inroads from the wilder mountaineers. Weakened and dispirited they sought the protection of Russia. It was given, and the ordinary results followed. In 1800 it became a Russian province; and the fate of the Crimean Mahometans became the fate of the Georgian Christians.

The Irôn.—Differing from the Georgians in language, differing, too, in being mountaineers, the Ossete, or Irôn, tribes agree with them in being Christians, though of the most imperfect kind, proselytes without conviction, professing Christians—professing Christians, but nothing more, their conversion having been effected, in the last century, by the Russians under a mixture of persuasion and coercion. One of the two roads between Georgia and Russia, as it winds itself through the great pass of Dariel, lies in the Ossete, or Irôn, country, which lies in the mountains of the middle range, north of Tiflis, and in contact with the country of the Tshetshentsh and Lesgians. Much has been written concerning these same Irôn, and an undue importance attributed to them. They have been deduced from the ancient and famous Alani, and again from the still more ancient and famous Medes. Their language, too, is said to be European rather than Caucasian.

The whole of these doctrines is unsafe. Their name is more *Persian* than Mede, for *Iran* is the old name of Persia; whilst their language can so little be separated from the Georgian, Circassian, Lesgian and Tshetshentsh, that, if it be made European, all the other must be Europeanised also.

The Tshetshentsh.—The Irôn and Tshetshentsh are the smallest of the divisions into which the populations of Caucasus fall. Follow up the Kuban from its mouth in the Black Sea to its head-waters, and, then, do the same with the Terek from the Caspian. The water-shed with its mountains, rocks, valleys, forests, and gorges,—broken and wild and inaccessible—is the area of the Tshetshentsh (or Mizhjeji). When you get upon the drainage of the Kur you are amongst the Irôn.

The rude vices and the equally rude virtues of men who are at one and the same time mountaineers and free-

men begin when we get amongst the Tshetstentsh, who are, probably, the hardiest of the hardy nations of the Caucasus. But they are also the most imperfectly known. That they fall into divisions and subdivisions far more numerous than the small size of their area leads us to expect is certain. Their dialects tell us this. So do the names of their tribes; Galga, Ingush, Arshte, Tshetshentsh Proper, and Tushi.

Strictly speaking, the Tshetshentsh have no place here. I am writing about the constituent elements of the Russian Empire; whereas the Tshetshentsh have yet to be reduced. Nor yet have the still independent—

Lesgians.—As brave, as rude, as Mahometan, and as unsubdued, as the Tshetshentsh, the Lesgians represent Eastern Caucasus—Caucasus on the side of the Caspian. It is these and the Tshetshentsh, rather than the Circassians, who hold out so obstinately against Russia, and who serve under the redoubted Shamyl as their leader—half prophet, half captain; for the spirit of fanaticism is as strong as that of patriotism here. Shamyl believes himself to be a second prophet whose mission is the extirpation of the Russians—and ever since '23 he has held them at bay. It is not, then, Circassia, but Lesgistan and the Tshetshentsh country that preserve their independence, and decimate the regiments of the Czar. It is the Tshetshentsh and Lesgians who, naturally broken up into divisions, mutually hostile and wholly unorganised, are now, by the genius of one man, moulded into a homogeneous confederacy as formidable from its unanimity as its bravery.

What manner of man is Shamyl? "Shamyl," writes Bodensted, as translated in an able article in the last number of the "Westminster Review," "is of middle stature, has fair hair, grey eyes, overshadowed by thick, well-marked eyebrows, a regular, well-formed nose, and a small mouth. A peculiar fairness and delicacy of skin distinguishes his countenance

from that of his fellow-countrymen, and his feet and hands are singularly well-shaped. The apparent immovability of his arms in walking indicates the determination of his character. His manner is noble and dignified. Perfectly master of himself, he exercises a silent influence over all who come into contact with him. A stern impassivity, which is undisturbed even in moments of the greatest danger, is his characteristic expression. A condemnation to death falls from his lips with the same calmness as he shows in conferring on a brave Murid the sabre of honour won in some sanguinary fight. With traitors or other offenders, whose death he has once determined upon, he converses without manifesting a shade of angry or vengeful feeling. He regards himself as simply the instrument in the hands of a higher Power, and holds, with the Sufis, that all his thoughts and decisions are the immediate inspiration of God. His eloquence is as fiery and persuasive as his ordinary manner is calm and commanding. 'Flames sparkle from his eyes and flowers are scattered from his lips,' said Bersek Bey, with whom Shamyl lived a few days after the taking of Akhulgo."

And the following (taken from the same source) is a sample of his proclamations: "In the name of Allah . . . . ye warriors of the Great and Little Kabardah, for the last time I send to remind you of your oaths, and to inspire you to war against the unbelieving Muscovite. . . . . Wherefore have ye doubted the truth of my mission, and listened more to the threats of the enemy than to my admonitions? Was it I who united together the tribes of the mountains, or was it the power of God working through me in wonders? Believe not that God is with the many. He is with the good, and the good are fewer than the bad. Look about you, and see if my words are not true. Are there not fewer good horses than bad?

Are there not fewer roses than reeds? Is there not more mud than pearls—more lice than cattle? Is not gold scarcer than iron? And are we not nobler than the gold, and the roses, and the pearls, and all the horses and cattle put together? For all the treasures of the earth pass away, but we are immortal. But if the reeds be more than the roses, shall we, instead of hoeing them out, suffer them till they choke the noble flowers? And if the enemies be more than we, shall we, instead of hewing them down, suffer them till they take us in their snares? Say not, the enemy has conquered Tscherkei, and destroyed Akhulgo, and taken possession of Avaria. When the lightning strikes one tree, do all the others therefore bow their heads and cast themselves down, lest it strike them also? O ye of little faith! Would that ye might take example of the green woods! Verily, the trees of the forest might shame you if they had tongues. . . . . Like dark clouds my troops shall overshadow your *aouls*, and take by force what you refuse to kindness. Blood shall mark my path, and fear and desolation shall follow me; for where words shall not suffice, deeds shall."

The Circassians.—The Circassians represent *Western* Caucasus; like the Lesgians, endowed with a rude energy, a chivalrous temper, indomitable courage, but who are, nevertheless, robbers, and dealers in human life.

The Circassians, I say, represent the Western Caucasians, and it is the Circassians who take the most prominent place in the eyes of Europe, though the Lesgians do the hardier deeds; for the Circassian country fronts the waves of the Black Sea, and is, as such, more accessible than the parts inland. The Circassians, too, are they whose personal beauty, both male and female, is so much vaunted. But the less said about this the better, for the praise has a discreditable basis. The beauties of Circassia are the best known because they are the most venal. The trade in them

is the largest—a trade that the Russians have professed to put down, but in reality connived at.

The pride of a Circassian is centred in his arms and horses; next to this in the honour of his chief. For Circassia is eminently the land of feudalism; the *Vork* being the analogue of the old English baron, the *Pshi* the suzerain, the *Tshokotl* the vassal.

The Mahometanism of the Circassians is of a less fiery and fanatic character than that of the Lesgians and Tshetshentsh —indeed, they were once a nation of imperfectly converted Christians.

In Shirvan and Erivan we pass into the area of the —

Persians and Armenians—populations which are only noticed as specimens of the heterogeneous character of the population for these parts.

Siberia and *Russian America* can only be noticed cursorily. In the former we have some of the obscurer members of the great Fin, or Ugrian, family, viz. the *Samoyeds*, the *Yeniseians*, the *Jukajiri*, the *Bashkis*, the *Teleuts*, the *Barabinsky*, the *Jakut*, and the *Kirghis*, and other Turks —the nearly extinct *Kamskadales*.

The *Tshuktshi*, however, preserve their independence. These lead us across Behring's Straits to North America, where the populations are referable to four divisions—*a*. The *Eskimo*; *b*. the *Athabaskan*; *c*. the *Koluch*; and, *d*. the *Haidah*—the first in the Aleutian Islands, the peninsula of Aliaska, the Island of Kadiak, and the shores of the Arctic Sea; the second farther inland; the third about Sitka Sound; the fourth in Queen Charlotte's Archipelago.

R. G. L.

ALEXANDER, EMPEROR OF RUSSIA.

In the first year of the present century Petersburg was kept in a state of constant distraction by its crazy Emperor. His monomania assumed a form which is not unfrequent among old kings and young clergymen of a certain school, —a morbid zeal in affairs of man-millinery. Ukases came forth directed against the round hats of the English and the pantaloons of the French; and if a gentleman appeared in the streets with top-boots, he was apt to be sent home on his stocking-soles, whilst ladies were imprisoned and fed on bread and water for not wearing their hair in the fashion approved by his majesty. For causes the most frivolous, and not unfrequently for no cause at all, veteran officers were cashiered, and nobles were sent off to Siberia: for a very harmless epigram a man of letters was sentenced to lose his tongue; and many persons disappeared who were believed to have been privately executed. Consternation spread through every circle, and existence became intolerable amidst the caprices and barbarities of a delirious despotism.

At last recourse was had to the extreme remedy of subjects under absolute government. About two in the morning of March 24, 1801, several officers of rank, including some of the Emperor's favourites, presented themselves at the door of his chamber. The hussar on guard refused them admission, and was cut down on the spot. The Emperor hearing a scuffle sprang out of bed, and hid himself in a closet where armour was kept. But he was soon disco-

vered, and dragged from his retreat. The conspirators presented a written abdication, and told him to sign it. This made him furious. He attempted to strike one of the party, and in return the grand equerry dealt him a blow which broke his arm. Others instantly closed in upon him, and bore him to the ground, when the sash of an officer was passed round his neck, and the unhappy Czar was strangled.*

Thus closed the career of Paul, the father of Alexander and Constantine, and of the present Emperor Nicholas. Of these, the eldest, Alexander, ascended the throne so fearfully vacated; and at the ceremony of his inauguration, as a French lady wrote to Fouché, "the young Emperor walked, preceded by the assassins of his grandfather, followed by those of his father, and surrounded by his own."

Alexander was born December 28, 1777. From his mother, Maria of Würtemberg, he inherited a gentle and affectionate disposition, with more susceptibility of friendship than is always convenient for an absolute monarch. Whilst still a little boy, he often felt powerful religious impressions; and so did his brother Constantine. The brothers slept in the same room, and when they grew old enough they gave up the form of devotion which they had been taught to commit to memory, and often poured out their hearts together in free and unpremeditated prayer. But unfortunately there was no one at hand to show them the way of God more perfectly. Their grandmother, Catherine, who took the entire charge of their up-bringing, was a virago and a scoffer, and the French tutor to whom she consigned them was a freethinker. At the same time Cesar Laharpe was a man of many virtues. He was a true republican, and he constantly laboured to fill with humane

* Biographie Universelle, tom. 56. Clarke's Travels in Russia, chap. 1. Alison's Europe, chap. 33. Bell's History of Russia, vol. iii. p. 255.

sentiments and liberal ideas the minds of his imperial pupils.

On assuming the sceptre, the young sovereign remembered some of the best lessons of his tutor. He abolished torture as a means of procuring evidence. He gave large concessions to the press. He established schools of chemistry, of medicine, and marine. He sought to encourage commerce, and for the improvement of agriculture he invited English farmers to settle in the country.

But it was the time of the great Continental war, and internal improvements are usually suspended amidst conscriptions and campaigns. Alexander levied armies against Napoleon. The murder of the Duc d'Enghien roused his generous indignation, and to considerations of policy added an element of almost personal hostility. But the Russian arms were unsuccessful. The bloody fields of Austerlitz and Eylau were soon followed by the rout of Friedland ; and in June of 1807 Alexander proposed to Napoleon an armistice, which led to an interview at Tilsit, and to that treaty which for nearly five years severed Alexander from his allies.

Up to this period the young Emperor was a man of the world, with more generosity and enthusiasm than most worldlings retain, but withal a lover of pleasure, and almost as ambitious as any of his predecessors. He was flattered by the friendship of Napoleon, and he was excited by a scheme which divided Europe betwixt himself and his new confederate. The project was as perfidious as it was daring, and the only excuse for Alexander is that he had fallen under the spell of a freebooter whose ascendancy over others was little else than magical.* Alexander was enchanted.

* " We are going to give the emperor a glass of laudanum, and whilst he is sleeping we shall go and occupy ourselves elsewhere."—JOMINI.

It seemed as if an apotheosis had taken place, and their twin-star hung in the firmament with a world at the feet of the new Castor and Pollux. At Erfurt, when Talma played before a "parterre" of sovereigns,—princes on benches, kings on common chairs, and the two autocrats enthroned in front of all,—at the line,

"L'amitié d'un grand homme est un bienfait des dieux,"

grasping Napoleon's hand, Alexander bowed and exclaimed, "Never did I feel it more," and the house resounded with imperial thunder.

At last the sorcery began to dissolve, and the masque fell from the face of the Italian Mephistopheles. In 1812 war was declared betwixt "the great man" and his friend, and the flames of Moscow on the one side, and the sepulture of half a million of men amidst the snows of Russia on the other, were the afterpiece to the drama of Erfurt.

It was after this great lesson that the soul of Alexander began to crave something more enduring and more satisfying than the friendships of this earth. Aspirations began to visit him such as he had often felt in the guileless days of his childhood; and although enfeebled by long habits of evil, and checked by infidel doubts, such aspirations were welcome, and he wondered if it were possible for a sinner to obtain peace with God. He began to pray. He read the Bible. He tried to regulate his temper and forgive his enemies. He became exceedingly thoughtful. Many would have said he was religious. He was everything except satisfied and happy.

When he was departing on the campaign of 1813, a lady of rank wrote out a copy of the 91st Psalm. At the moment when he received it he was just quitting Riga, and without reading the paper he put it in his pocket. He travelled three days without changing his clothes; and on

the frontier he went into a church, where he heard a sermon on the words, "Thou shalt tread upon the lion and adder; the young lion and the dragon shalt thou trample under feet." The sermon arrested his attention, and made a considerable impression on his mind. But in the evening, when, examining his papers, he alighted on the lady's transcript of the self-same Psalm, he felt that there was here the hand of a special Providence, and not only was he encouraged as to the success of the campaign, but he returned to the reading of the Scriptures with new earnestness.

Grave and God-fearing as the Emperor had now become, so that his staff remarked a certain grandeur or solemnity superadded to his wonted affability, he still longed to find one who could solve his doubts, and guide him into the light of clearer knowledge: when one day he heard a letter read which Madame de Krüdener had written to a friend. Madame de Krüdener was a lady of an ancient Livonian family, at one period of her life remarkable for her wit and her brilliancy, and now in her declining years not less remarkable for her ardent piety. With a faith in God, to which nothing was formidable, with uncommon vigour of mind, with sleepless zeal and activity, she had become the Russian Countess of Huntingdon, and very wonderful was the influence which she exerted over the minds of others. On hearing that letter of hers, Alexander felt, There is one who could help me! but she was then at a distance, and his time was engrossed in the urgencies of a great campaign.

It was early in June 1815 that Alexander reached Heilbronn, on his way to meet Napoleon, who had escaped from Elba. Borne down by the double load of personal and imperial anxieties, he was sitting alone in his apartment, and had taken up a book,—but he could not read. The volume dropped from his hand, and he was thinking what a comfort the conversation of a pious friend would

prove amidst his present dejection, when some one knocked at his door. It was his aide-de-camp, Prince Wolkonski. "I beg your Majesty's pardon for disturbing you at so untimely an hour, but there is a woman who is determined to see you, and I cannot get rid of her." "What is her name?" "Madame de Krüdener." "Madame de Krüdener!" exclaimed the Emperor; "let her enter instantly." Seeming to take up his case in a twinkling, with the courage of a prophetess, and with the enchaining earnestness of one who spake in the name of the Lord, she called to his remembrance the sins of his former life, and revealed to him the pride which lurked in his own plans of self-reformation. "No, sire, you have not yet approached the God-Man, as a criminal coming for pardon. You have not yet received grace from Him who alone has power on earth to forgive sins. You are yet in your sins. You have not yet humbled yourself before Jesus; you have not yet cried from the bottom of your heart, like the publican, 'O God! be merciful to me, who am a great sinner.' That is the reason why you have not peace. Hearken to the voice of a woman, who has also been a great sinner, but who has found the pardon of her sins at the foot of the cross of Christ." At these words of a feeble woman, the Emperor of all the Russias buried his face in his hands, and wept bitterly. The speaker apologised for her freedom. "Oh, no," he exclaimed, "continue! your words are music to my soul. You have showed me things which I have never seen before." And when the interview ended, the Emperor told her that he was proceeding to head-quarters at Heidelberg, and entreated his visitor to come and see him again.

Accordingly Madame de Krüdener hired a lodging near Heidelberg. It was a little farm-house on the banks of the Neckar; and thither each alternate evening for three weeks came the Emperor of Russia; and in a little chamber, with

three cows in the apartment adjoining, he passed hour after hour with his spiritual instructress, accompanied by some Christian friend or another, in reading the Word of God, and conversing on its saving truths. Rapidly did light and peace flow into a spirit prepared to receive the kingdom of Heaven as a little child; and along with this joy of salvation came a happy confidence in God, and an expansive benevolence which took in his very enemies. The disastrous news of Quatre-Bras and Ligny failed to agitate him, and on the 23d he received the tidings of Waterloo with a composure which surprised all his officers. But that evening, in the little farm-house, he begged Madame de Krüdener's chaplain to render thanks for this great deliverance, and was the first to fall upon his knees. Rising from prayer, with tears in his eyes, he exclaimed, "Oh, how happy I am! my Saviour is with me. I am a great sinner, and yet He is pleased to use me to gain peace for the nations. Oh, that all people would learn the ways of Providence, and obey the Gospel: how blessed they would be!" A moment afterwards he added, "Oh, how I should rejoice to see my brother Constantine converted! I love him much, and it grieves me to see him still in the darkness of sin. I bear him on my heart, and I shall never cease to beg of the Almighty to open his eyes." It was in the same truly Christian spirit that in the following September, on the day when 150,000 Russian soldiers had joined in a great act of thanksgiving at Vertus, before returning home, the Emperor declared, "This has been the happiest day of my life. My heart was filled with love for my enemies. I have prayed fervently for them all, and it has been with tears at the foot of the cross of Christ that I have implored the salvation of France."*

* See "Vie de Mad. de Krüdener, par Charles Eynard," tom. i. 332–342; tom. ii. 92.

It is easy to say that Madame de Krüdener was a mystic and a methodist. In all her conversations with Alexander we see nothing but loyalty to the King of kings, and we hear nothing but the words of truth, though spoken with unusual freedom and fervour. And it is easy to say that Alexander was acting a part. But what end could it answer? Among the wits of Paris and the crowned heads of Europe, what *éclat* was to be gained by the reputation of being "righteous overmuch?"* Whatever may be the case at present, in those days Czars had little temptation to appear as champions of the faith, or to fill their manifestos with appeals to Heaven.

Returning to Petersburg the Emperor laboured for the good of his vast dominions, although obstructed by many obstacles, which often balked his best designs and eventually crushed his spirit. He strove to improve the condition of the serfs, and among the upper classes he encouraged literature. Mindful of the instructions of Laharpe, he even wished to prepare his country for freer institutions. Above all, and grateful for what he had himself received from the Scriptures, he became the zealous patron of the Bible Society; and during his reign 448,109 copies of the Sacred Volume were circulated in forty-one of the dialects spoken by his subjects.†

Nor was his religious feeling a passing emotion. We have been informed by a venerable friend who resided for a time in Petersburg that he took the liveliest interest in all that was transpiring in the missionary field, and received every Saturday morning an abstract of religious intelligence

* "Je suis disciple de Christ. Je marche l'Evangile à la main; je ne connais que cela."—EYNARD, ii. 72.

† See the works on Russia by Drs. Henderson and Pinkerton. Also the appendix to Schnitzler's "Secret History," vol. ii.

which he had requested our friend and his colleagues to pre
pare for his use. And by the counsellors whom he receive
into his nearest confidence, he showed that they were th
excellent of the earth in whom he delighted.

When in London he had visited a Quaker meetin
and so impressed was he by the simplicity and spiritualit
of their worship that the Society of Friends had a chi
place in his affection ever after. Early in 1819 the vis
was repaid by that noble philanthropist, William Alle
accompanied by Stephen Grellet. They had repeated in
terviews with the Czar, in which Mr. Allen especially urge
on his Majesty to do more for the education of a people
whom twenty millions were unable to read. The Emper
was scarcely able to break off his conversations with the
single-hearted disciples, and seemed delighted to meet wit
friends who could understand his feelings. Before departin
says Mr. Allen, "I believed it right for me to offer up
supplication, but so awful did it appear that I had gre
difficulty in giving way. The Emperor came to the so
and knelt down by me, and now strength was given n
beyond what I had ever felt before, and the precious pow
accompanied the words. When it was finished, I paused
little, and then rose. He rose soon afterwards, and we sat
few minutes in silence. We then prepared to take leav
The Emperor was much affected, and held us by the hanc
it was a solemn parting; he raised my hand to his lips a
kissed it. I was now anxious to be gone, and moved towar
the door; and after taking leave of Stephen, the Empe
went hastily into another room."*

There was a dark shadow on the Emperor's private lif
Early united in marriage to an excellent and most loveab

* Sherman's Memoir of Allen, p. 228.

erman princess, he had for many years allowed his affection
be divided by one of his own subjects. That other
roved at last as faithless as he himself had done, and along
ith many bitter remembrances there remained nothing that
e could love except a beautiful and engaging child whose
ther he was. Mademoiselle N—— was now seventeen,
nd was affianced to a young officer, with the Emperor's full
pproval. The splendid trousseau was ordered at Paris.
he marriage-day drew near, and everything promised fair.
t was a morning in the great square of the capital, and the
mperor was reviewing a detachment of his guards. An
ide-de-camp rode up, and requested leave to speak with
is imperial highness in private. At once the quick eye
f affection divined the fatal message. Mademoiselle N——
as gone! A mortal paleness overspread the face of the
apless father, and as he struck his hand on his forehead
ose near him heard him exclaim, "I receive the punish-
ent of my sins." In a few moments, however, and by a
reat effort, he summoned composure sufficient to conclude
he review, and then rode dejectedly off the ground.

The death of this child and its sudden announcement
ad on Alexander an effect like Nathan's message on the
onarch of Israel; and, whilst receiving the blow as a
unishment from God, amidst his remorse for the past he
elt reviving for the wife of his youth the tenderness of early
ffection. "Elizabeth had tears to shed for the daughter of
er rival, and none sympathised more deeply than she with
he suffering father. He began to see in her what his own
eople and the people of Europe had long seen, an angel of
oodness and resignation; his former affection to her revived,
nd he sought to cause her to lose the bitter recollections of
he past, by his constant, assiduous, delicate, and devoted
ttention. His respect for her, and his tenderness towards

her, increased daily, and he seemed again to feel attachment for life in her all-powerful fascination." *

But amidst her past sorrows the health of the Empress had been broken, and in the autumn of 1825 her husband set out to prepare for her a residence in the south, where they might pass the winter together. But in his rapid journey he caught the fever of the Crimea, and expired at Taganrog, December 19. Shortly before he breathed his last, looking up at the Empress who sat beside him night and day, he said, "Never have I felt such a glow of satisfaction as at this moment; I thank you from the bottom of my heart." Soon after the rattle was heard in his throat, and the power of speech was gone. "He made a sign to the Empress to approach, and imprinted a last and fervent kiss on her hand." She continued kneeling by his bed-side, "with her eyes fixed upon him, as he gradually became weaker and weaker, until all signs of life were gone. Then, rising, she closed his eyes, and with a handkerchief bound up his head, to support the lower jaw. After this, she folded his hands over his breast, kissed his hand, and then knelt down by the side of the dead body for half-an-hour in prayer to God."† This noble-minded woman was not destined long to survive her husband. She died on her way back to Petersburg on the 16th of the following May.

* Schnitzler, vol. i. pp. 101, 102.

† Lee's "Last Days of Alexander," p. 48. Alison's "Europe since the Fall of Napoleon," ii. 218.

PAPERS ON THE AIR AND SKY.

No. VI.

RAINBOWS, HALOS, AND THE MIRAGE.

THE unobstructed light as it streams down from the blue sky illuminates all things, clothing them in their rich and varied tints, but shows no colour itself; rendering everything visible, it is itself unseen, save by its effects. Yet the white ray is a cord composed of threads of many hues, and it may be untwisted by what is termed refraction, as may be seen at any time by causing it to traverse a wedge of glass.

Just in this way the sun glancing on the falling shower wakes into being the rainbow. Without presupposing in our readers a good knowledge of optics, it would be impossible adequately to describe the formation of this "bridge betwixt the earth and heaven." Suffice it to say, that the rays of light which strike the upper portion of each round drop of falling water are refracted, and those within a certain angle are reflected, and bring from the lower portion of the drop to the spectator's eye the magic colours of the divided light. This taking place with the whole cluster of drops in those parts which are in a similar position in respect to the sun and the observer, forms a great coloured arch spanning the earth, perhaps against the dark background of a black thunder-cloud. The rays which enter at the lower portions of the drops suffer a similar refraction, and form a second bow with the colours reversed; but, as less light is reflected in this case, the arch is always fainter, and in the majority of instances is not noticed at all. If the

phenomenon be very brilliant, we may distinguish all the rays from the red to the violet; but often, on account of the smaller power of red light, only the yellow and blue are recognisable; and sometimes from their pre-eminent luminosity the yellow rays stand out alone.

Every one has observed that an oar when plunged into the water appears bent upwards. In a similar manner, whenever light passes from a denser into a thinner medium, or *vice versâ*, the ray is bent, and the object from which it is reflected is seen in an unreal position. Now it frequently happens that through the agency of heat or moisture different layers of air are in different states in respect to density, and this gives rise to strange appearances—coloured halos round the sun, mock suns shining at the same time perhaps as the true one, and brilliant curves or lines of light crossing the sky in varied directions. But the most remarkable of these is the "mirage," that takes place when the air at the surface of the earth is much hotter than that a little above it: then objects appear in their wrong positions; and the thirsty traveller over the sandy plains of the desert sees before him tempting lakes of water that on approaching fade away, leaving nought but the hot still air that created the illusion. This phenomenon may frequently be seen on our own shores on a hot summer's day, when the outline of sea and land becomes indistinct, and promontories or islands seem as though suspended in the air: and something similar may be seen on a small scale over the surface of a field where mown grass is being rapidly converted into hay. In Polar regions, too, an analogous phenomenon often presents itself, icebergs or ships being seen inverted over the horizon, or raised far above the sea.

The deep blue of the sky is supposed also to be owing to the refraction of light; and to the same cause must certainly be referred the various colours which clouds assume. Had

the earth no atmosphere, the setting of the sun would be instantly followed by profound darkness, but the property which the air possesses of bending a ray and the reflexion from clouds cause not only that the orb of the sun lingers on the horizon longer than it otherwise would do, but that some of his light reaches us long after he has disappeared.

While treating of meteorology it may be expected that something should be said about those masses of metal which sometimes fall from the sky. In all countries and in all ages have well-attested instances of this phenomenon appeared: the many ancient stones "which fell down from Jupiter" might be cited, or the fine collection in our British Museum might be referred to—all consisting of iron together with some nickel and cobalt, with occasionally other elements, but scarcely containing the least quantity of the most extensive and universal of terrestrial substances—oxygen. The subject would be a most interesting one, but though the origin of these aerolites is still wrapt in great mystery, it is almost universally allowed that they are not formed in the air, but come to the earth from some other quarter in the planetary spaces; and were we to trace back their descent we should speedily pass from our field of discussion—the earth's atmosphere.

It was intended to bring this series now to a close, by a description of the electrical phenomena that present themselves in the aerial spaces, but the subject is too large, and must be reserved for a separate paper. J. H. G.

BIRTHDAY BLESSINGS.

Blessings be on thee, by night and by day;
Peace, the world cannot give, nor can e'er take away;
Hopes, with the rainbow's bright woof that may vie,
And though springing from earth, catch their hues from the sky:—
And may Love, life's chief blessing where'er we may roam,
Ever follow thy footsteps and hallow thy home!

All blessings be thine, and inspire in thee still
The "Charity" gentle that "thinketh no ill;"
The "Faith" amid darkness that brightest appears,
And the Pity too earnest and busy for tears:
And may Friendship, the "spikenard" that helps to "make whole"
The bruisēd in spĭrit, shed its balm on thy soul!

All blessings be thine, may thy life flow along,
Like a bright summer river, in sunshine and song;
Be the heavens o'er thy head ever tranquil as now,
And no cloud ever trouble thy bosom or brow:
Or by sorrow if e'er thy soft heart be chastised,
Be the griefs that assail it but "blessings disguised!"

Blessings be on thee, by night and by day;
Ever blessing and blessed, may thy years glide away;
Ever loving and loved, till thy mission be done,
And the crown that awaits thee hereafter be won:
And may Time if their current he speeds be forgiven,
That but draws thee from earth to be nearer to heaven!

Alaric A. Watts.

REVIEW OF THE MONTH.

In our country's poetic galaxy few lights remain. Two have gone down in one short month. John Wilson died on the 3d of April; James Montgomery on the 30th, having lived to welcome more than eighty springs; for he was born November 4, 1771. Meek, gentle, and inoffensive, as most of his Moravian brethren have been, it was his lot to have hard measure dealt to him in his earlier days. As editor of the "Sheffield Iris" he was twice imprisoned for libel; and his "Wanderer of Switzerland" was in 1807 the object of a very ungenerous attack in the "Edinburgh Review." But it all came right at last. The imprisonments were the only romance in his history, and added greatly to his fame. He lived to hear the offending article universally pronounced a blot on the "Edinburgh Review," and the "Review" lived to utter panegyrics on his poems. Of these, "The World before the Flood" is the finest effort. Among the various attempts to describe the death of Adam, we know none equal to the touching picture contained in its fourth canto. His stanzas "On the Death of an Aged Minister," and "What is Prayer?" although scarcely hymns, are exquisite gems of sacred poetry, and can never perish so long as England retains a Christian literature. But of all his compositions we are inclined to regard some of his "Songs of Zion" as the happiest and the most unique. They are not a mere rendering of the Psalms into rhyme. Still less are they, like Dr. Watts's, a replacement of Old Testament language with the words and phrases of the Gospel. But they are Hebrew psalms attuned to a Christian harp: the

for the Church's Missions in India than any publication since the Journal of Henry Martyn appeared. To the pen of an accomplished daughter we owe the record of a Christian worth and a feminine culture "far above rubies," in a Memoir of Mrs. Ridley Herschell. We have also taken up and begun with much interest the Life of Mrs. Sherwood,—the frank and amusing autobiography of a good and cheerful old lady. From the other side of thirty summers these pages bring back the days when "Henry and his Bearer" and "The Fairchild Family" first entranced our childhood; and in listening to her own story we recall the charm of that time so full of faith and wonder, and when the leaves of a new book had a fragrance quite as delicious as the May and the lilac under which we nestled and read it.

In three stout octavoes Dr. Waagen has revealed to Great Britain its "Treasures of Art." It is hard to say which is most admirable,—the learning, the industry, or the taste of this German connoisseur. But in his description of illuminated manuscripts, and in his account of galleries public and private, he has provided a fund of exhaustless amusement and instruction for those who appreciate art and who wish to understand it better.

The war has given rise to a literature sufficiently copious to form a little library. Of books on Russia the best which have fallen in our way are the works of the Marquis de Custine and Schnitzler,—Golovin on the Caucasus, Oliphant on the Shores of the Black Sea, and Hill's Travels in Siberia. We have just received an excellent epitome of Nicholas and his doings by the Rev. H. Christmas. And opportunely for those who wish to travel and see for themselves Mr. Murray has published a Hand-Book of Turkey.

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Songs of Zion explained and ennobled by Pentecost. As an example we would refer to the 72d.

Lord Cockburn died at Bonaly, near Edinburgh, on the 26th of April. When he was a barrister the juries of Scotland found him resistless. With uncommon perspicacity and great plainness of speech, with a fluency that never faltered, and with a countenance the very soul of benevolent sincerity, there was a fascination in his gaze which arrested the dullest clodpole, and held him till a responsive twinkle announced that he understood the case, or the tear in his eye gave good signs of a verdict. His "Life of Lord Jeffrey" did not bring out the fund of legal and literary anecdote of which he was well known to be the richest surviving possessor; but we are told that he has written it in "a book," and that it will yet be forthcoming.

The May Meetings are over. Including 66,009*l.* 10*s.* 2*d.* realised by the sale of Bibles and Testaments, the receipts of the Bible Society for the year ending March 31 have been 222,659*l.* 5*s.* 10*d.* Of this amount 30,000*l.* are for the fund for supplying a million Testaments to China.

The omnibus-drivers of London hold their public meetings at midnight, "the chair to be taken at twelve o'clock precisely." The Young Men's Christian Association celebrates its annual breakfast at six in the morning. The former we have never attended; but, as the Rev. Hugh Stowell said, we have seen nothing "for beautiful freshness and morning dew that could compare with the latter." Nor is there any better hope for England than in those 500 sons of hers whom we met on the 10th of May, and who, to help one another in every good work, are banded together in such a delightful brotherhood.

From the census it appears that in England and Wales the Sunday scholars in 1851 amounted to 2,407,409. It is calculated by Mr. Baines, of Leeds, that the Sunday School

teachers are not fewer than 300,000, of whom only 10,000 are stipendiary. Could means be found for depositing within the Church all the population now growing up within these schools, our country might soon deserve the name of Christian.

The religious and educational census of Scotland is now published. Of the actual attendance at public worship on March 30, 1851, the following are the most important items :—

	Morning.	Afternoon.	Evening.
Established Church	351,454	184,192	30,763
Free Church	292,308	198,583	64,811
United Presbyterian	159,191	146,411	30,810
Episcopal	26,966	11,578	5,360
Independents	26,392	24,866	17,278
Baptists	9,208	7,735	4,015
Wesleyans	8,409	2,669	8,610
Roman Catholics	43,878	21,032	14,813
All Denominations.....	943,951	619,863	188,874

In Scotland the number of day scholars is 368,517. In schools supported by religious bodies, the Established Church educates 36,995; the Free Church, 62,660. The Sunday scholars of Scotland amount to 292,549, being ten per cent of the population.

To our stores of Christian Biography we have received some valuable additions. Mr. Andrew Bonar has republished the Life (by Tyler) of Nettleton, the American revivalist,—a most animating example of a ministry at once earnest and successful. From the hand of his widow we have a Memoir of the Rev. J. J. Weitbrecht, the admirable agent in Bengal of the Church Missionary Society,—a book likely to do more

for the Church's Missions in India than any publication since the Journal of Henry Martyn appeared. To the pen of an accomplished daughter we owe the record of a Christian worth and a feminine culture "far above rubies," in a Memoir of Mrs. Ridley Herschell. We have also taken up and begun with much interest the Life of Mrs. Sherwood,—the frank and amusing autobiography of a good and cheerful old lady. From the other side of thirty summers these pages bring back the days when "Henry and his Bearer" and "The Fairchild Family" first entranced our childhood; and in listening to her own story we recall the charm of that time so full of faith and wonder, and when the leaves of a new book had a fragrance quite as delicious as the May and the lilac under which we nestled and read it.

In three stout octavoes Dr. Waagen has revealed to Great Britain its "Treasures of Art." It is hard to say which is most admirable,—the learning, the industry, or the taste of this German connoisseur. But in his description of illuminated manuscripts, and in his account of galleries public and private, he has provided a fund of exhaustless amusement and instruction for those who appreciate art and who wish to understand it better.

The war has given rise to a literature sufficiently copious to form a little library. Of books on Russia the best which have fallen in our way are the works of the Marquis de Custine and Schnitzler,—Golovin on the Caucasus, Oliphant on the Shores of the Black Sea, and Hill's Travels in Siberia. We have just received an excellent epitome of Nicholas and his doings by the Rev. H. Christmas. And opportunely for those who wish to travel and see for themselves Mr. Murray has published a Hand-Book of Turkey.

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